The Builder.

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ILLUSTRATIONS.

Study for a Royal Memorial Chapel ..... Designed and Drawn by Mr. Andrew Hutton.
Proposed Blue Coat Hospital, Liverpool ..... Messrs. Briggs & Wolstenholme, F. B. Hobbs & Arnold Thornely, Architects.
Interior of Memorial Chapel, Blue Coat Hospital, Liverpool ..... Do. Do.
Exterior of Memorial Chapel Do. Do. ..... Do. Do.

Blocks in Text.

New Bakery, Brompton Road ..... Pages 356-35
The Old Blue Coat Schools, Liverpool. Measured and Drawn by Mr. Matthew Honan ..... ,, 364
Old Blue Coat Schools, Liverpool: Detail of Centre of Elevation ..... ,, 365

CONTENTS.

A Great Architectural Artist 349
The Use of Gas in the Building Trades 350
Notes 351
The Architectural Association 353
Magazines and Reviews 356
Competitions 356
New Bakery, etc., Brompton-road 358
Architectural Evolution 359
The London County Council 361
Illustrations:—
Design for a Royal Memorial Chapel 362
New Blue Coat Hospital for Liverpool 362
Architectural Societies 362
Applications under the 1894 Building Act 363
The Old Blue Coat School, Liverpool 364
The Development of Architecture 364
Court of Common Council 365
Metropolitan Asylums Board 366
Correspondence:—
Frosterly Marble 366
Construction of Drains 366
"Hair Bitumen" Covering 366
The Student's Column 366
Books Received 367
Obituary 367
General Building News 368
Sanitary and Engineering News 368
Miscellaneous 368
Capital and Labour 369
Legal:—
Rushing up a Wall 369
Strand Ancient Light Case 369
Arrangement in Ancient Light Dispute 369
Patents of the Week 370
Meetings 370
Some Recent Sales of Property 370

A Great Architectural Artist.

ALL readers of the *Builder* will hear with regret of the death of Mr. H. W. Brewer, which was announced in the *Times* of Thursday. For the space of a quarter of a century he had been one of the most important and original contributors to the illustrated department of this journal; and though he had a wide reputation, and his work was seen in illustrated journals for general readers such as the *Graphic*, among architectural journals his connection has always been solely and entirely with the *Builder*, for which he produced work of a class which we do not know that any one else can at present supply.

Mr. Brewer's early contributions to our pages were simply illustrative; chiefly drawings of mediæval buildings in Germany, generally selected as rather out of the beaten track of architectural illustration. These he drew on the wood in a most masterly manner (the system of photographing on to the wood had not then come into use); they were noteworthy for the sense of composition and the breadth of light and shade effect which characterised them; and they were always cut by one engraver (Heaviside), who understood his work and could make the best of it; and these old engravings from Brewer's drawings have none of that hard mechanical style of execution which (at this distance of time we may admit) characterised many of our own as well as other illustrative wood engravings. These impressions in our old volumes afford fine examples of what could be done with the aid of wood-engraving, now unfortunately almost killed by the various forms of processing.

It was almost simultaneously with the introduction in our illustrative pages of lithography that Mr. Brewer seemed to perceive that there was a wider field for an architectural artist in black-and-white than the mere representation, in however powerful and artistic a manner, of existing monuments. Thenceforth, for our pages at least, he took up one or other of two new lines of illustration; one, the invention of architectural scenes purely with a view to picturesque effect; the other, the restoration in drawing (a wholly innocent form of restoration) of monuments of the past which had disappeared, but for the reconstruction of which a certain degree of documentary evidence could be found. To the first task he brought genius and imagination, to the second, learning and research. One of the first of his pen-drawings for lithography was one which in picturesque force and poetic feeling he perhaps never surpassed subsequently—the one entitled "Deserted," showing a mediæval city, with its cathedral rising in a heap in the centre of the composition, the houses clustering round and clinging to it, silent and deserted after a visitation of the plague—not an unknown occurrence in the Middle Ages. Among others of his architectural creations were two contrasted compositions entitled "Renaissance Gorgeousness" and "Romanesque Grandeur"; an exceedingly fine picture called "The Ancient Harbour," which will be within the recollection of many of our readers; and a remarkable drawing entitled "Measure and Value," which was not only an architectural composition but a critical protest. The drawing represented an immense massive Cathedral front, somewhat recalling Peterborough, and the bearings of the title lay in its application—in the implied conclusion that no such building would ever have been erected on the contract system, which Mr. Brewer regarded as being at the bottom of the comparatively weak and feeble character of much modern architecture.

More numerous, however, than his purely imaginative works were his archæological creations, of which a great number of most remarkable examples are in existence. To this kind of task he brought imagination based on careful research, and he spared no trouble in getting the materials for his restorations. His drawing showing a resuscitation of old St. Peter's at Rome was one of the most remarkable things of the kind ever done; of the value set on it by Roman archæologists we could judge by the repeated applications which have been made to us to allow of its reproduction in one or another historical publication. Among other remarkable drawings of this class were those of "London in the Time of Henry VIII.," Paris at the same period (bird's-eye views or panoramas), "Mediæval Oxford" (also a panorama); another panoramic view of "Some English architecture of the past fifty years," done for the Jubilee Number of this journal; Old St. Paul's; Nonsuch Palace; "Old Cheapside"; "Aldgate in 1531," and many others showing the same remarkable union of archæological study with picturesque power. We have in our possession the last two drawings of this class which he made, and which still remain to be published: restorations of two quarters of Old Paris. In our next issue we will give a list of all his works which are to be found in our volumes, with the dates of publication.

Mr. Brewer was one of the most simple-minded and unassuming of men; more interested in his art for its own sake than for any advantage he could make for himself out of it; and we know that some draughtsmen of architectural subjects far inferior to him in real accomplishment, but who had obtained a more popular repute, obtained terms far beyond what he asked, for work not to be compared to his in real value. From years of out-door sketching in all weathers, he had the weather-beaten appearance suggesting the life of a sailor rather than of an artist; and though he always appeared to have excellent health, perhaps this exposure shortened his life; he was only sixty-seven when he died.

Mr. Brewer was a devout Catholic, to which fact may be traced, no doubt, to some extent his special interest in the remains of extinct mediæval abbeys and other religious institutions: though architecture for its own sake was perhaps his leading interest. He was one who, both for his character and his talents, commanded the respect of all who knew him, and whose loss to us is one of the greatest which this journal could have sustained.

THE USE OF GAS IN THE BUILDING TRADES.

By H. F. Hills, *Chemist to the Commercial Gas Co., London.*

THE last five years have witnessed an extraordinary and continually increasing growth in the volume of gas consumed for industrial purposes, and inquiry shows that this is largely due to the increasing use of gas in the building trades. In all buildings in which lighting by luminous flames has been superseded by the incandescent system of lighting, the quantity of gas required to yield a given intensity of light has been reduced to one-sixth part of the amount required before the change was made, and this would for a time have had a paralysing effect upon the gas industry throughout the country but for the fact that the use of gas for heating and power purposes has increased with unprecedented rapidity. The official returns relating to gas supply in the United Kingdom show that the output of gas at the present time is far greater than it has been at any previous period in the history of the industry; and as it is evident, in view of the very extensive substitution of small-consumption incandescent burners for large-consumption flat-flame burners, that a large proportion of this gas is used for purposes other than lighting, it may interest those who have not previously given the matter consideration to trace this portion of the gas output to its various points of consumption.

Large quantities of gas are, as is well known, used for domestic heating and cooking, but it is the purpose of this article to refer only to the gas consumed for industrial purposes in one or other of those businesses which are commonly classified as building trades. In London, in particular, the quantity of gas supplied to the building trades is increasing at a very rapid rate, and it is becoming more and more apparent tht if, as has been suggested by Mr. H. E. Jones, the President of the Institution of Gas Engineers, the London gas companies, instead of supplying gas having a calorific value of 620 B.T.U. at about 2s. 6d. per 1,000 cubic feet, as at present, were to supply gas having a calorific value of 500 B.T.U. at 1s. 6d. per 1,000 cubic feet, then the displacement of coal as a fuel would be almost universal throughout the metropolis. This cheap gas would have the same flame intensity as that at present supplied, and would yield, with the incandescent mantle, practically the same intensity of light for every unit of gas consumed as that which is now obtained. To induce manufacturers to consume gas in bulk, and to bring the day consumption of gas into closer approximation to the night consumption, and thus reduce the cost of storage and distribution, many companies make a reduction in the price of gas used for power purposes; but if the price for all classes of consumers were reduced to the suggested 1s. 6d., it is probable that the day consumption would equal the night consumption without any such artificial encouragement.

But even at its present price, gas is being used in so many industries that limitation of space prohibits even the mere enumeration of all the purposes to which it is applied.

That the building trades are materially concerned in the dispute as to whether gas companies ought to supply cheap low-grade gas suitable for industrial purposes and incandescent lighting, or costly high-grade gas suitable for flat-flame lighting, is demonstrated by the fact that most of the appliances mentioned in the following list, and which were mostly invented by the late Mr. Thomas Fletcher, are now in general use.

Gas Engines.—The most important gas-consuming appliance used in the building trades is the gas engine, which is now commonly used to operate saws, lathes, pumps, mortar-mills, haulage cranes, and a number of other machines used in connexion with building. The late Mr. Bryan Donkin estimated that the number of gas engines in use in the United Kingdom at the commencement of the year 1897 was 25,700. The number in use at the present time is estimated at 80,000, representing an increase of over 200 per cent. in less than seven years. At present London prices, the cost of operating a gas engine amounts to from one halfpenny to three farthings per hour per brake horse power, and as the cost for fuel per brake horse power is considerably less when a good steam engine is employed, the fact that many prosperous business firms are tearing out steam generators and erecting gas engines in their place may, for a moment, appear inexplicable. The factors which so often make gas cheaper than steam as a source of power are:—

1. No stoker is required. Instead of a stoker at 25s. per week having to be employed, a workman on the premises is glad to give the gas engine all the necessary attention for an addition of 5s. per week to his ordinary wage, and the time occupied in attending to the engine is inconsiderable.

2. No time is lost in starting work. The engine can be started or stopped at a moment's notice without waste of fuel.

3. The gas engine occupies only about one-fourth of the space occupied by a steam engine and boiler yielding the same power. This is an important consideration in town factories.

Other facts in favour of the gas engine are that it never occasions complaints of a smoke nuisance; that it does not necessitate the importation of coals into the factory, nor the removal of ashes; and that flue-cleaning and boiler-cleaning are not required.

Although a considerable number of 100 to 600 h.-p. engines are in use, the great majority are of lower power. Looking through a list of the gas engines in use in a certain London district, it is seen that there is a fairly general distribution of the smaller sizes; almost every size from ½ h.-p. to 100 h.-p. being represented, and no one size greatly predominating in number over the others. Large engines usually consume about 15 cubic feet of coal gas per hour per brake horse-power, and very small engines about 22 cubic feet.

An attempt has been made during the present year, by Messrs. Hacker Bros. to utilise electric power at their saw mill in Old Ford, but it has been found that the cost of power in this form is prohibitive. An electromotor of about 20 B.H.P. was supplied with electricity by the Poplar Borough Council, at an average price of a little under twopence per unit, and the electricity bill for eleven weeks amounted to 54*l.* 9s. 5d. The electromotor was then displaced by a Stockport gas engine, of about double the power, and although the gas engine did a little more work per week than the electromotor, the gas bill for twelve weeks amounted to only 20*l.* 5s. 5d. In this case, therefore, electricity as a source of power cost about three times as much as gas.

Lead Burning.—It was for many years believed that lead burning could only be accomplished with the aid of a hydrogen flame, but it has since been found possible to do the work equally well with coal gas and a small foot-blower. Coal gas is now commonly used for this purpose.

Water Heaters.—Water heaters and water boilers for use with gas are manufactured in a great variety of forms and sizes. They are used for many trade purposes, and are also useful in workshops for providing the employees with boiling water at trifling cost to the employer.

Metal Melters.—Lead melting is now very commonly effected in a gas-heated ladle furnace. One hundredweight of lead can be melted in half an hour, even when starting with everything cold. About two pounds of lead are melted for every cubic foot of gas consumed. Tin, zinc, or solder can, of course, be melted in the same furnace.

[illegible]ving Ovens for Varnishes.—The ease with which a gas-heated oven or drying chamber can be maintained at any required temperature for any length of time has caused these appliances to become indispensable in many industries. They are extremely useful for drying lacquers and varnishes, and can be made of any shape or size. The fact that many thousands of these ovens are in use is sufficient evidence of their value.

Blowpipes.—Gas blowpipes are now very largely used for brazing, and similar purposes. The development which has taken place in the adaptation of the blowpipe to industrial purposes during the last twenty years is remarkable. Small blowpipes in which the air-blast is supplied from the mouth, or from a small foot blower, are used in large and increasing numbers; but in addition to these, Messrs. Fletcher, Russell, and Company now manufacture blowpipes which when used in conjunction with a foot-blower will heat a 3-inch wrought-iron pipe to brazing heat in six minutes; and other blowpipes in which oxygen instead of air is used for the blast, which will in one minute fuse a hole through wrought-iron steam pipe ¼ inch thick. With these instruments machinery can often be conveniently repaired without being removed from its working position.

Muffle Furnaces.—Gas-heated muffle furnaces are used in great numbers for firing painted glass or enamelled ware, and for many other purposes.

Rivet Heaters.—Gas reverberatory furnaces are already in use for heating rivets, tempering metal tools, and work of similar character. If these come into general use they will materially increase the demand for gas.

Blast Furnaces.—These are used for heating solid metal bars; and gas forges for ordinary smiths' work are manufactured.

Tinning Baths.—Baths for tinning tubes, wire, or sheet metal are most conveniently maintained at the required temperature with the aid of gas, and the same remark

applies to the pots containing pitch, which are used in the manufacture of brushes.

Branding Irons.—These are either self-heating, like a gas-consuming laundry-maid's iron, or may be heated in a specially constructed gas furnace.

Tinman's Stoves.—These stoves for heating soldering bolts are so largely used and so well known that they require no description.

Sundry Utensils.—Among the appliances of minor importance which consume gas, and which are used in the building trades, may be mentioned self-heating soldering bolts for ordinary work; soldering bolts for jointing the lead in stained glass windows, and soldering bolts for use with an air blast for work which is too heavy to be performed with gas and air under normal pressure. Also safety glue pots heated by gas, and designed to meet the requirements of the fire insurance offices.

The foregoing list indicates a few of the purposes to which gas is applied in the building and allied trades. In many other industries which are in no way connected with building it is also being used in increasing volume.

For some years past it has been the fashion for the would-be smart journalist to call gas manufacture a decadent industry. Those who have watched the annual returns of the Board of Trade know this to be merely a betrayal of ignorance, whilst those who have observed the rapid growth in the volume of gas used for industrial purposes cannot but foresee that the supply of gas is likely to become a matter of vital national importance in the immediate future.

NOTES.

Safeguards Against Fires in the City.

A REPORT presented to the Corporation by the City Coroner, on the subject of precautions against fires in the City, has been referred to the Streets Committee for consideration. Although a Coroner is not usually regarded as an expert in structural matters, there are reasons why Dr. Waldo should be heard at the present time. It was his duty to preside over the inquest relative to the lamentable fire that took place in Queen Victoria-street, in June, 1902, and in the course of the inquiry much valuable evidence was placed before the jury. The City Coroner now directs attention to the opinion expressed by the jury, that the loss of life in that fire need not have occurred if suitable exits had existed in the roof, and in other parts of the building attacked. He suggests the desirability of obtaining powers so that the Corporation may be enabled to compel the owners of business premises to establish proper structural safeguards against fire. As matters stand, it is impossible for the authorities to demand adequate protection for persons employed in warehouses and factories, and revision of existing legislation is clearly desirable. We understand that the Streets Committee are now considering the possibility of joint action by the City Corporation and the London County Council, with the object of obtaining the amendment of the London Building Act of 1894. This is a very proper and reasonable step, and we learn with regret that there appears to be some difficulty in the way which is likely to delay the proposed reforms. There generally is some hitch when rival municipalities are required to act together, but the matter now in question is urgent, and the lives of the people must not be jeopardised by jealousy, obstinacy, or any other cause.

Motor Transport for Goods.

ATTENTION was once more called to this important subject by Mr. D. Mackenzie, at a meeting of the Society of Engineers this week. Dealing with goods in bulk, the author arrived at the conclusion that for loads of less than five and a half tons horse traction would be cheaper than motor transport, and he placed the ideal load at from five to ten tons for distances exceeding ten miles. If the journeys were too short, or the loads too light, he believed that motors could only be used when economy was not the first consideration. We cannot entirely agree with such opinions. At the present time there is need for cheaper and more rapid means of transporting farm produce from rural districts to the towns, and for conveying parcels and small consignments from town to town, or between town and country. The rates charged by railway companies are frequently so high as to cause the annual waste of tons upon tons of fruit, vegetables, and other food stuffs, that would be welcomed by those who dwell in cities, in replacement of foreign supplies now brought into England at unfairly low rates. Further, the delays apparently inseparable from the railway system directly tend to discourage transport. While it may be the case that isolated motor vehicles cannot compete with the horse or the locomotive, we firmly believe that properly-organised systems of rapid and comparatively light motor vans for different districts would find a large sphere of usefulness. Parcels and small consignments of goods or produce could be collected and delivered direct to their destinations without the delays caused by unloading and transhipment at railway depots; and market monopolies would no longer prevent farmers from selling produce direct to consumers on remunerative terms.

Another Lift Accident.

MOST mishaps in connexion with lifts are due to the absent-minded carelessness of passengers, or the culpable negligence of persons in charge. Some of them, but not very many, are due to defects in the mechanism, for which the makers may be held responsible. An inquest held on Monday last, at the City Mortuary, brings to light an extraordinary lack of care on the part of all concerned. The accident took place at a printing works in the City. It seems that while a workman was taking up some lithographic stones the lift chain snapped, and the cage fell to the basement. There were two safety clips that ought to have held the cage, but for some reason they did not act. A foreman mechanic, who erected the lift fifteen years ago, and who admitted responsibility for all repairs to machinery, stated to the court that so far as he knew the lift had never been thoroughly overhauled, nor the chain renewed since erection, and further, that he could not tell why the safety clips had failed to act. This witness believed a chain should last for twenty years, and he did not believe the examination of a lift every three months was at all necessary. On production of the broken part of the chain, it was found that many links were so worn as to render them unsafe, while the broken link had evidently worn to an abnormal degree. Altogether, it is clear that the misplaced optimism of the foreman had a great deal to do with the accident. His duty, among other things, was to see that the chain was safe, and that all safeguards were in proper working order. These vital points were neglected. Another extraordinary circumstance is that although a firm of engineers were recently employed to overhaul the lift, they did not take off or test the chain. Again, it is unsatisfactory that the factory inspector should have failed to make inquiry as to the condition of the lift in the course of the fifteen years during which it had been in use. The moral of the accident is that periodical inspection of lift gear is necessary for safety, and owners of lifts ought to be held responsible for seeing to it.

Testing Electric Machinery.

IN Vol. XIX. of the "Journal of the American Institution of Electrical Engineers" there is an admirable report on the standardisation of electric machinery. This report deserves most careful study by all electrical engineers, as it contains a great deal of information that cannot be obtained elsewhere. Very full instructions are given for the testing of all kinds of electric plant and machinery, and the tests have the merit of being both simple and conclusive. It seems to us that if the Institution of Electrical Engineers in this country issued a similar report, and adopted standard methods of testing, it would be a great boon to manufacturers and consulting engineers. At present manufacturers are sometimes asked to build machines that have to give quite impossible efficiencies under various conditions. Under these circumstances, it generally happens that only second-class firms tender for the contract, and unless the machine is very bad, the consulting engineer generally passes it, as the methods of testing in vogue in this country are in many cases extremely primitive. In the same way, manufacturers of iron for dynamos are often asked to guarantee that the losses due to eddy currents, etc., in the iron will not rise above a certain stated value. As the tests are only made in a few cases, and as it is extremely difficult to get the absolute value of the losses, manufacturers prefer to run the small risk of having their material rejected before the contract time is up, rather than go to the expense of having their materials fully tested. Now that such problems as the "ageing" of iron, the variation of the insulation resistance of cables with temperature, the maximum temperature which insulated wires will stand with deterioration, the sparking distances for various pressures, etc., have been almost completely solved, it seems a pity that the Institution of Electrical Engineers should not publish authoritative statements on these subjects to which manufacturers could refer.

Water Supply in Norton Rural District.

Dr. Wheaton's Report to the Local Government Board on the water-supply in the Norton Rural District (East Riding of Yorkshire) shows a very bad state of things in this district, which it appears has repeatedly been subject to outbreaks of fever and diarrhoea in the eastern portion of the district, but in regard to the western portion we have the same story, with only slight variation, throughout the Report. Rillington, the largest village in the district, is supplied with water from wells constructed of bricks placed loosely together without mortar or cement, and without any external puddling of clay to prevent water entering them from the upper layers of the subsoil. The water of these wells is liable to pollution from many sources; frequently the well is situate in a foldyard, or by the side of a pigstye. Frequently in proximity to uncovered and leaking midden privies and defective catchpits and house drains. In one place are nineteen dwellings with no other available source except the beck; the liquid refuse from these houses and from others higher up in the course of the stream enters the beck, in addition to the droppings from domestic animals, washings from manure heaps, and filth and refuse of all kinds thrown in the water. At Winteringham water is collected by drainpipes in a tank in the graveyard of the parish church, whence it flows in pipes by gravitation to tanks in the village street. At Scagglethorpe water is obtained from a spring running for some distance in an open channel in a field, where the water was fouled by cattle. At Settrington about half the dwellings have no water except that which is obtained from a number of shallow holes in the banks of the stream which runs through the village, the water of which is very foul, and receives the liquid refuse from the dwellings. At Burythorpe many dwellings are without a supply of water, and there is no public supply. "A row of eleven cottages was provided with a well, fitted with a pump, but no water could be obtained from it at the time of my visit, and in consequence the occupiers had either to fetch water from a small beck about 250 yards distant, which received liquid house refuse and was otherwise liable to pollution, or to beg water from persons who were more fortunate in possessing available sources of supply. With respect to this well, it is doubtful if the water which would be furnished by it was fit at any time for domestic use, since it was situate in a garden, and manure heaps and pigstyes were in close proximity." The Rural District authorities seem to have done little or nothing, so far, towards getting a better water-supply.

Tyldesley-with-Shakerley Urban District.

The Report on the Tyldesley-with-Shakerley Urban District, by Dr. R. W. Johnstone, deals with the other usual kind of rural district evil, bad drainage and sanitary system. Middens constructed of pervious bricks, their contents in some cases thrown out on the public way preparatory to final removal; closets served inadequately with waste water, the District Council having refused to supply water free of charge for flushing water-closets. Result—frequent outbreaks of enteric fever. Dr. Johnstone's Report concludes with the remark that the Urban District Council should take steps to substitute water-closets for the existing middens, and adds that in this connexion it would be well if the District Council set an example to others by first setting their own property in water.

The Institution of Heating and Ventilating Engineers.

We have received a copy of the "recommendations suggested by the Council" of this Institution, for the purpose of obtaining uniformity of practice in the preparation of plans, specifications, and estimates for the heating and ventilation of buildings. Briefly stated, the recommendations are:—(1) That contractors tendering in competition should be provided, free of expense, with plans and sections of the building, and should be given full instructions in writing of the results desired. (2) That out-of-pocket expenses should be paid. (3) That if any special system is preferred, the contractors should be informed of the fact, and should be permitted to suggest modifications. (4) That full details should be given to the architect, so that he will be enabled to select the most favourable tender. (5) That sufficient time should be allowed for preparing estimates. (6) That tenders should be sealed, and should all be opened at the same time, and that if any tender is very much below the others the contractor should have the option of withdrawing it on forfeit of his deposit, but should not be allowed to amend it. (7) That, if guarantees are required, the contractor should not be held responsible, unless he has prepared the scheme. (8) That the terms of agreement should be equitable, the cost of preparation to be borne by the client; and (9) that certificates should be given during the progress of the work up to 80 per cent. of the value of the work done, a further 10 per cent. on completion, and the balance of 10 per cent. within six months. Some objection may be raised to the first and second recommendations, although they do not appear to us to be unreasonable. The others are entirely commendable.

The Old Dutch House, Bristol.

Those who know Bristol will be concerned to hear that the City Engineer has been ordered to report as to the safety of the picturesque half-timber building known as the "Old Dutch House," according to a doubtful legend that it was brought over from Holland and erected in its present situation. There really is nothing particularly Dutch in its character, but it is a most interesting specimen of English street architecture of the eighteenth century, and every effort ought to be made to preserve it. Mr. Harold Smith, an architect practising in Bristol, writes to the *Bristol Times* on the subject:—

"With regard to its preservation, I think there will be few educated people acquainted with the history of our ancient city who will differ from me when I say that every means known to the modern architect should be employed in effecting as thorough, and yet conservative, a restoration as possible. A short time ago one of the partners of our senior firm of local architects propounded a scheme in the columns of this paper. He proposed, generally speaking, to set back the base of the building, and to carry the superstructure on steel columns behind the glass front, and to support the failing timbers with steel brackets. The footpath would thus be widened, and the building secured against any further failure. There is not much doubt that this can be done; and there is certainly a sufficiency of talent in the city to do it both quickly and well. There only remains, then, the task of producing sufficient enthusiasm in the public mind to justify the authorities in giving the order and making the outlay."

Bishop King's House, Oxford.

It is remarkable that when so much is done, both by the University and the Corporation of Oxford, to retain the old characteristics of the place, Bishop King's house should remain in its present state. It is, and must continue, a charming example of seventeenth century architecture. But the gable nearest St. Aldate's-street is filled with a photographer's advertisement, and a hideous though small addition, next to St. Aldate's-street, takes away from the harmony and completeness of the north front. We presume that the house is private property; it is, however, so interesting a relic and example of past architecture—the front was rebuilt in 1628—that it should be purchased by the Corporation, and kept without defacement. At any rate, those who are interested in retaining all the old characteristics of Oxford might bring their influence to bear to mitigate the vandalism which at present defaces this charming building.

The Phil May Exhibition.

The collection of works by the late Phil May, at the Leicester Gallery, just out of Leicester-square, is calculated to raise one's opinion, not of May's powers as a draughtsman, which were already admitted to be of the highest, but of his versatility and of his delicacy of taste. When one got a whole collection of his studies of the lowest type of inhabitants of the London slums in one volume, and saw these studies, and little else, of his in *Punch*, one was apt to think that such talent in line drawing was rather thrown away on this repulsive class of subject, and that the author of them, with all his ability, had rather a vulgar taste. In the exhibition in Leicester-square "the elements are kindlier mixed." There is more variety of subject; and not only is the treatment of line work masterly throughout, but the insight into character in many of the subjects is most remarkable. Look at the face of the butcher in No. 61, for instance; the character of the two men in No. 16; the "street jeweller" in No. 26; the figure of the military uncle, with his back to the spectator, in No. 70. Among the pencil drawings the gushing young woman and the famous actor (80), which appeared in *Punch* quite lately, are admirably contrasted, and the power of expressing character in mere outline is well shown in "Ghetto Ways" (153), though one must admit that this is one of those that verge on vulgarity. The studies of figures sketched in colour are as clever as the black-and-white examples; those called "Costume Studies" especially. If the promoters of the exhibition wanted to convince visitors of the comparative refinement and good humour of Phil May as a satirical artist, they could hardly have done better than to place a collection of the work

of Rowlandson in the adjoining room. The talent of Rowlandson in line and composition cannot be denied, but the hatred and brutality in his caricature is so offensive to all one's better feelings that one would almost wish his works were destroyed, as a discredit to human nature. Phil May has everything to gain by the comparison; his satire is that of a gentleman, Rowlandson's that of a ruffian.

The Parthenon Model.

PROFESSOR ERNEST GARDNER writes to point out that we were mistaken in saying that the Panathenaic frieze is omitted on the Parthenon model at the British Museum. It is not visible, to an eye at the average height, except by stooping and looking up under the outer entablature. What appears opposite the eye, in its ordinary position, is the empty course of wall, just about the size (by scale) that the frieze should be, which really represents the position, though not the function, of the architrave on the side wall of the cella. The writer of the "Note" forgot this at the moment. It may be added, in excuse, that three or four people who were looking at the model at the same time all had the same impression. The incident emphasises the fact, often commented on, how very curiously the Greeks were content to hide away so masterly a piece of sculpture almost out of sight of the spectator, as it must have been in the building as well as in the model.

THE ARCHITECTURAL ASSOCIATION:

OPENING MEETING OF SESSION 1903-1904.

THE opening meeting of session 1903-1904 of the Architectural Association was held on Friday evening last week in the Meeting Room of the Royal Institute of British Architects, No. 9, Conduit-street, W., the President, Mr. H. T. Hare, occupying the chair. There was a large attendance of members and others, including His Excellency Viscount Hayashi, the Japanese Minister, Mr. Aston Webb, R.A., President of the Royal Institute of British Architects, and Mr. T. Sudsuki, who is visiting this and other countries in order to study methods of architectural education.

The minutes of the last meeting having been read by the Secretary, Mr. Driver, and confirmed, the following gentlemen were elected members of the Association, *i.e.*, Mr. H. Whiteman Rising and Mr. A. J. Perrin, and the following were reinstated, *i.e.*, Messrs. L. Sage, C. Granville Baker, and W. J. Waghorne. Mr. Arthur Keen was also elected by acclamation.

The President said he wished to propose the election of Mr. T. Sudsuki, who had been sent over to England by the Japanese Government to study the methods of architectural education here and in other countries. Mr. Sudsuki would take about four years in completing his study of the various systems, and the members of the Association would, he (the President) felt sure, wish to give Mr. Sudsuki a hearty welcome, and give him every facility and assistance they possibly could.

The motion was heartily agreed to, and Mr. Sudsuki briefly replied, expressing his thanks to the President and members.

New Premises Fund.

The President then announced the following donations to the New Premises Fund:—Messrs. W. D. Caröe, 25*l.*; Clyde Young, 25*l.*; W. Campbell Jones, 10*l.* 10*s.*; J. Douglass Mathews, 10*l.* 10*s.*; A. N. Prentice, 10*l.* 10*s.*; G. Sherrin (second donation), 10*l.* 10*s.*; W. H. Bidlake, 10*l.*; T. W. Aldwinckle, 5*l.* 5*s.*; E. R. Barrow, 5*l.* 5*s.*; F. T. W. Goldsmith, 5*l.* 5*s.*; Lacy W. Ridge, 5*l.* 5*s.*; H. W. Stock, 5*l.* 5*s.*; W. J. Waghorne, 5*l.* 5*s.* 4*d.*; Felix Clay, 5*l.*; E. Greenop, 4*l.* 4*s.*; Somers Clarke, 4*l.*; Anonymous, 2*l.* 2*s.*; F. G. Allsopp, 2*l.* 2*s.*; R. E. Crossland (second donation), 2*l.* 2*s.*; W. Curtis Green, 2*l.* 2*s.*; Arthur Keen, 2*l.* 2*s.*; Halsey Ricardo, 2*l.*; J. H. Cooper, 1*l.* 1*s.*; W. H. Knowles, 1*l.* 1*s.*; W. J. M. Thomasson, 1*l.* 1*s.*; Butler Wilson, 1*l.* 1*s.*

On the motion of the President a vote of thanks was accorded to the donors.

The following class, it was announced, would commence on October 12, "Materials, their Nature and Application," Mr. H. A. Satchell, lecturer. It was also stated that the preliminary meeting of the School of Design would be held on October 15, and that the speakers would be Mr. Walter Cave and Mr. J. S. Gibson. The President said he hoped members would take full advantage of the various classes.

Election of Officers.

The President said that at the next meeting Mr. Louis Ambler would be proposed as Hon. Secretary, and Mr. G. B. Carvill as a member of Committee. It would probably be in the knowledge of most of them that Mr. Bolton having resigned the headmastership of the Day School, Mr. H. P. G. Maule was appointed in his place. This created a vacancy in the hon. secretaryship, and Mr. Ambler had consented to serve in that capacity. Mr. Ambler's acceptance of the office caused a vacancy on the Committee, and Mr. Carvill had consented to serve, subject, of course, to his election by the general body.

On the motion of the President, a hearty vote of thanks was accorded to the Bath Stone Firms for allowing the recent visit to their quarries,* and for entertaining the members in the generous manner in which they did; and also to Mr. Mowbray A. Green for arranging visits to a number of buildings in Bath. Those gentlemen who took part in the visit must have enjoyed the programme exceedingly, and have been instructed by what they saw. Their hon. member Mr. Sudsuki formed one of the party, and from what he (the President) saw Mr. Sudsuki must have brought away more information than any member who was present.

It was further announced that Mr. E. O. Sachs had invited members to visit on the following Wednesday the Exhibition for Fire Prevention at Earl's Court, and 100 tickets had been placed at the disposal of the members.

The Secretary announced the following donations to the library, *i.e.*, "The Arts in Early England," by Professor Baldwin Brown, presented by Mr. Arnold Mitchell; "Old English Doorways," by Messrs. W. G. Davie and H. Tanner, junior, presented by Mr. H. Tanner, junior; "Country Houses," by Mr. Ernest Newton, presented by Mr. B. T. Batsford; Mitchell's "Advanced Construction," presented by Mr. B. T. Batsford; "Academy Architecture, 1903." Part I., presented by Mr. Alex. Koch; "The Great House, Leyton," by Mr. Edwin Gunn, presented by the Committee for the Survey of the Memorials of Greater London; and Portfolio of Drawings for the use of the Day School, presented by Mr. R. Douglas Wells.

A vote of thanks was accorded to the donors.

Presentation of Prizes.

The President then presented the prizes and studentships for session 1902-1903. The following is the complete list:—

A.A. Travelling Studentship, value 25l., and Silver Medal.—A. G. MacNaughtan.

Second Prize, value 5l.—Vincent Hooper.

A.A. Medal, value 10l. 10s.—A. A. Carder.

Second Prize, value 5l. 5s.—L. G. Detmar.

Banister Fletcher Bursary, value 25 Guineas, and Medal.—J. Gillespie.

Hon. Mention.—A. A. Reeve.

A.A. Scholarship, value 4l. 4s.—T. W. Watkins.

Studio. Division I.

C. R. Pinsent, drawings of old work, book prize and volume of A.A. Sketch Book; T. A. Jaques, study of ornament, book prize and volume of A.A. Sketch Book; G. F. Royds, general work, book prize and volume of A.A. Sketch Book.

Studio. Division II.

T. J. Tatham, drawings of old work, book prize and volume of A.A. Sketch Book; J. F. Schneider, study of ornament, book prize and volume of A.A. Sketch Book; J. V. Gibberd, general work, book prize and volume of A.A. Sketch Book; A. E. Brooker, perspective, book prize.

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* See our last issue, p. 335.

Order of Merit.—Lectures. Division I.

Greek and Roman Orders.—1. J. H. Markham (book prize). 2. A. T. Groves. 3. T. W. Watkins.

Classic Ornament.—1. B. Chaikin (book prize). 2. A. Binning. 3. J. H. Markham.

Elementary Construction.—1. B. Chaikin (book prize). 2. A. T. Groves. 3. T. W. Watkins.

English Architecture.—1. C. R. Pinsent (book prize). 2. J. H. Markham. 3. T. W. Watkins.

Mediæval and Renaissance.—1. R. C. Foster (book prize). 2. S. W. Hill. 3. T. S. Atlee.

Elementary Physics.—1. T. W. Watkins (book prize). 2. R. C. Foster. 3. H. H. Whittington.

Plane and Solid Geometry.—1. T. W. Watkins (book prize). 2. B. Chaikin. 3. G. P. Bowie.

Lectures. Division II.

Materials.—1. E. Gunn (book prize). 2. A. Potter. 3. D. Anderson.

Construction.—1. E. Gunn (book prize). 2. D. Anderson. 3. J. V. Gibberd.

Drainage and Water Supply.—1. E. Gunn (book prize). 2. H. W. Currey. 3. E. Dru Drury.

Ventilation, Lighting, and Heating.—1. H. W. Currey (book prize). 2. E. Gunn. 3. W. S. Dakers.

Professional Practice.—1. E. Gunn (book prize). 2. H. W. Currey. 3. R. E. Stewardson.

Land Surveying.—1. E. Gunn (book prize). 2. J. R. Hobson. 3. H. W. Currey.

School of Design.—Elementary Class.—1. H. A. Hall, prize value three guineas and bronze medal. 2. M. E. Webb, certificate. *Advanced Class.* — 1. J. MacLaren Ross, prize value five guineas, bronze medal, and pass for modelling class. 2. G. Drysdale, certificate and pass for modelling class.

Essay Prize (value Ten Guineas, with a Silver Medal).—John Swarbrick.

Andrew Oliver Prize.—P. W. Lovell, prize value two guineas; B. Drummond and L. L. Jeeves, prizes value one and a half guineas each.

President's Address.

The President then delivered the following address:—

When we met together in this room a year ago you may remember that I expressed the hope that I should shortly be in a position to make an announcement that the pressing question of our new premises had at last reached a solution, after having constantly occupied the attention of your Committee for many years. Session after session allusion has been made to the subject in the Presidential address, and it may well be that your patience and hope have become well-nigh exhausted.

The anticipation is, however, now happily fulfilled, and after long negotiations we have been able to take possession of the Royal Architectural Museum, for so many years located in Tufton-street, Westminster, and formerly housed at the then Brompton Museum. *The Builder* chronicles the fact in 1857 that "the Architectural Museum has been removed from the quaint, dirty hole in Cannon-row where it was planted and grew."

This fortuitous consummation being reached, your Committee forthwith proceeded to the consideration of many proposals for the adaptation of the premises to our needs; were able to instruct their architect, Mr. Leonard Stokes, one of our past-presidents, to proceed without delay with the work; and to accept the estimate of Messrs. Holloway Brothers. To-day substantial progress has been made, and there is no doubt we shall be able to move into our new home at the end of March next.

I have no intention of wearying your patience with the long and deeply interesting history of the Royal Architectural Museum; that has already been written in part; and now, no doubt, the time is at hand when an authentic and detailed account of its origin and progress will become an obligation posterity may demand. It will be enough to say that it has had a long and brilliant past, and that it is a tangible evidence of the potency of the Gothic revival. Some may here be led to remark that that cult had become effete; that the institution had fallen upon evil days, and was passing away in senile decay. If such were the case it is but a surface truth, which accomplished events have abundantly disproved. True! the Museum had become out of sympathy with its environment through the trend and evolution of architectural progress,

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in which it had held such a pre-eminent position, and exerted such a widespread influence.

It is the fashion, in looking back on the Gothic revival, to speak slightingly of the enthusiasm which possessed its leaders, or to regard that enthusiasm as worthy of a better object. The direct effect, however, is with us to-day in our emancipation from the artistic paralysis of the first half of the last century. The leaven is still working, with full and perhaps increasing potency, and the wonderful renaissance is yet only emerging from its shell, and there is promise of such glorious developments as may perhaps eclipse the greatest triumphs of the past. Beneath the apparent desolation of the Museum was a latent vigour, based upon our indigenous architectural traditions destined to successfully receive the graftings of such a vigorous constitution as that of the Architectural Association, whereby to renew its strength, and with regenerated powers to influence for lasting good our noble profession. This sketch, I venture to think, is not overdrawn, and while we are accepting new responsibilities, we are also investing ourselves with a heritage in delightful associations and replete with potent possibilities.

The interests centred at Tufton-street are one thing; the collections are another; and without going further into that it may be said that the study and contemplation of the contents of the Museum and of the cognate studies there represented have had no small part in the great renaissance to which I have just referred. It will be impossible to adequately refer to the long roll of honourable names linked with the history of the Museum, but I cannot refrain from reminding you that among those in the past have been H.R.H. the late Prince Consort, Earl de Grey, Ruskin, Donaldson, Sir Charles Barry, Beresford Hope, Scott, Cockerell, Penrose, Pearson, Brandon, and a host of others; while in the living present we have Mr. John P. Seddon, Mr. Aston Webb, Sir William Emerson, and Mr. Maurice B. Adams, who for so many years has acted as honorary secretary, and through whose enthusiastic interest the idea of fusion has been translated into a reality. These are names which, I venture to think, will be for ever connected with the Royal Architectural Museum.

We see to-day noble blocks of Government buildings rising in Whitehall, which strangely seem to recall to memory the hot controversies and battle cries of the styles which raged when the Foreign Office designs were prepared by Sir Gilbert Scott in a manner alien to his sympathies. In all of this, no doubt, Tufton-street exercised a not unimportant influence. Scott is generally supposed to have vindicated in St. Pancras Station what he would have done in Whitehall had he been so permitted by the powers that then were. Time, however, has its revenges, and it is not a little entertaining to read a couplet in an antique volume of that valuable and enlightened journal *The Builder* of the period in question, being a reflection "on reading a discussion on the new Government offices":—

"Scott's windows may give us abundance of light,
But 'tis clear that Scott's windows will never fit Titt."

In those days the Museum was a centre of light and leading, and I trust that it may still be in a more extended way a factor to be reckoned with in the architectural movements and interests of the day.

The past year has not only been significant and epoch-making by what may be designated as the great departure, but it has been rendered notable by the successful completion of the first year's working of the Day school. This is a matter for sincere congratulation, and this fact is important enough in itself to have taken precedence of everything else. However, these two events have come together side by side; the school demonstrating beyond all dispute the inadequacy of our present premises. This climax may well encourage us in the highest anticipations for the future progress of our society under the more favourable conditions which we shall enjoy in our new home.

After two years of ungrudging labour Mr. Arthur Bolton has, greatly to everyone's regret, relinquished the post of headmaster of the Day school, which he has filled with unqualified distinction, and the success which has attended the school is doubtless due in a very large measure to his devotion. To undertake a mastership is one thing, to organise and originate is another. Mr. Bolton has done both. Our ideal has been to give definite and systematic instruction by a one year's course of training preliminary to office work, and, when desired, to supplement this by a second year's course of more advanced study. This instruction is partly intended to enable the student to gauge in a measure before life is too far advanced his capacity, and to test practically his inclination for entering the profession. The latter consideration need not be present, but had it been possible for many now alas! in practice, perhaps some careers would have been happier and architectural repute more unsullied. The instruction which our day students receive, at the hands of the master and his assistants, is based on principles which are intended to enable an intelligent interest to be taken in what they will see going on around them when they enter an office, and to assist them to assimilate the knowledge which will be at their disposal if they can but seize their opportunities.

Some of us can recall happy days of long ago, when enthusiasm was high and zeal, often misdirected, outran knowledge. This spirit Mr. Bolton has been able to foster, and to direct to sources of wise inspiration. I cannot do better than invite you to inspect the results evidenced by the students' work, and to come and see the schools in operation for yourselves. The progress so far has been most gratifying, and we shall watch with signal interest the subsequent careers of those students who have had the good fortune to pass through the school. The success is all the more remarkable as having been attained under the very difficult restrictions which the present premises imposed upon us. When we enter upon our new home next year we shall confidently expect to see corresponding developments.

To fill the vacant mastership has been a difficult and anxious duty. I am certain that the selection of Mr. Maule has the full approval of the Association. The responsibilities of the post are by no means light, and, whatever the new master's opinion of his own fitness may be, all will agree that no better choice could have been made.

In connexion with these two topics, before leaving them I have two appeals to make. First, in regard to the Day school. I take this public opportunity of commending it to the consideration of parents, guardians, and heads of public schools, as affording an excellent means of testing the aptitude of the coming man for his future profession. Should experience show within twelve months that he is unsuited for the calling of an architect, he will have been no loser thereby, but will have gained much information useful in other walks of life, and will have been spared the drudgery of an uncongenial occupation.

The other appeal I have to make is to a wider audience than that represented within this room. I refer to the building fund, which still requires to be largely augmented before we can hope to be free from debt. The work on which we have embarked at Tufton-street is one which is in the interests of every member of our profession; indeed, I do not think I am guilty of exaggeration if I say that it is of national importance. In every other great country it would be undertaken or heavily subsidised by the responsible government; here, however, it is left to private effort, and the greater need there is, therefore, for every member of the Association and the profession at large to afford the utmost support which their means will allow.

We are honoured this evening by the presence of His Excellency the Japanese Minister, and we have just elected as a member of our Association Mr. Sudsuki, who is visiting many countries for the purpose of studying the various systems of architectural education and reporting to his Government. This clearly shows the determination which exists in that far distant land not to be left behind in the promotion of the arts and sciences, and appears to me to be an example which our own country might well take to heart.

One cannot help hoping that in the extraordinary energy which the Japanese Government and people evince to assimilate all that is good in nations foreign to them, they may not lose sight of the delightful arts which are traditional with them, but that these may be fostered and promoted, rather than superseded, by the importation of extraneous methods.

I may perhaps be pardoned for making a very brief financial statement in respect of our new premises. The contract which we have entered for the remodelling of the Architectural Museum amounts to 8,400*l.*, and it is calculated that a further sum of perhaps 1,500*l.* will be required for equipment and furnishing, making a total of about 10,000*l.* Towards this we have donations and promises amounting to about 3,700*l.*, and it is proposed to transfer 1,000*l.* from the capital account of the A.A., making a total of 4,700*l.* We have therefore still to collect more than 5,000*l.* before we can hope to be free from debt.

The Association numbers nearly fifteen hundred members, and one might reasonably expect that each one of these would contribute to an object which is so much in their interest. Up to the present time, however (although we have to thank many generous donors), less than one quarter of our members have responded to the appeal. I feel that some great effort should be made to bring the general body into line, and I here invite every member to follow the example already set by your committee, by doubling the amount of his yearly subscription for this session only. This should be within the means of all, and produce a community of interest, which would be for the good of all.

The provincial societies have also an interest in this matter, and very welcome have been the contributions sent by some. I commend the good work heartily to the others, and indeed to all persons interested in the progress and advancement of architecture (and who should not be?) as a national British art, and ask them to show their practical sympathy by coming forward to assist us to complete the provision of the large sum necessary for the adaptation and enlargement of the Royal Architectural Museum to the purposes of the Association.

We have had to undertake certain financial responsibilities relative to and contingent on the acquisition of the property and its extension, while in addition to this there will be considerable outlay in the re-arrangement and exhibition of the valuable collection of casts, which will be open free to the public as heretofore. In regard to the latter, we hope to make the collection as far as possible representative, chronological, and useful in every way to students at large.

Many have laboured for the Association in the past and given ungrudingly of their time and means. We to-day may enter into their labours and continue them. I feel sure I shall not appeal in vain, and that the provision of these highest and indispensable facilities will not be left to become a burden to the Association, and a drag upon its work and progress.

There is some danger that in the prominence which is necessarily being given at the present time to the establishment of the Day school and to our new premises, the valuable work which is being done in our studio and other evening classes may be lost sight of. I would wish here to urge the necessity of young architects continuing their studies in their spare time, and point out that there is no better means of organising and directing these studies than joining the various classes which are open to them, and which have worked so well in the past.

Death is ever too busy with us, and to-day we have to lament the loss of some valued colleagues whose sympathy and counsel have helped us in the past. The late Mr. F. C. Penrose was associated with the early days of the Excursion under Edmund Sharpe. We also deplore the loss of Professor Roger Smith, twice President of this Association, ever its kind adviser, and the friend and learned instructor of all young men brought under his helpful influence.

In drawing to a conclusion, I have a few reflections which I wish to offer to our student members. I might again advise the enthusiastic pursuit of the study and delineation of ancient buildings, or the fruitful results that await the diligent student of architectural literature, without enlarging on either, which I have done before. I would again heartily commend both to you. What I want to do is to venture to suggest the deliberate consideration of such studies as are the outcome of demonstration and experience, observation and research, rather than the perusal of books and the abstract theories of mankind. Sir Norman Lockyer, in his illuminating address before the British Association, made this pregnant statement, "From neglect of research comes imperfect education, and a small output of new applications and new knowledge to reinvigorate our industries."

Last year I made more than a passing reference to the necessity of brains in the active evolution of architecture, and perhaps the younger members will pardon me if I beg them to read what I then said in connexion with

what I have to say now. Now, it seems to me that much of the deplorable wickedness which we unfortunately see abounding in the thoroughfares of our cities and towns is the result of (to put it in better words than mine), "old rule of thumb processes, which are preferred to new developments"—a conservatism too often resulting from the master's own lack of knowledge. This may seem a hard saying, but it should be our object, as much as lies within our circumscribed and limited powers, to develop and foster the abilities with which we are all more or less endowed. It is no crime to be young, and all possibilities lie with youth, so that in a way it may be said that to be young is to be successful.

To secure our well-being as a profession it is highly important to see to our organisation and equipment, the consideration of which is to us personally as important as the provision of "battleships and big battalions." It is brains therefore that we want, fortified by the experience and research of others, and it is the practical personal study of the design and execution of modern work by modern masters, reinforced by the rich heritage of art which has come down to us. It has been recently said, "It is a great thing to learn to use other people's experience, and to get it first hand, not trusting entirely to books. Knowledge obtained from men is the most mentally nourishing and the most easily assimilated."

What I would leave with you is the picture sketched by Robert Browning:—

"Here, work enough to watch
The master's work, and catch
Hints of the proper craft, tricks of the tool's true play."

Mr. G. H. Fellowes Prynne, in proposing a vote of thanks to the President for his address, said that the duty of doing so would have fallen on their friend Mr. W. H. Seth-Smith had he been well enough to be present. They would feel more especially sorry that Mr. Seth-Smith was not present because the work he had done for the Association had been the main cause of his bad health, and they would not forget that Mr. Seth-Smith's name was inseparably connected with both the Day school and the new premises scheme. The President had achieved two records. The first, in being able to make the definite announcement, so long looked for, so long hoped for, so long deferred, of the approaching removal of the Association to more adequate premises, and he congratulated the President on being able to make the announcement. Every member of the Association, knowing the difficulties there had been in carrying on the work of the Association in the present limited space, would welcome the move, and appreciate the great value the new premises would be. The second record was—and he said it with all deference—that the President had taught them how to make a short address. It was probably the shortest presidential address ever delivered in that room. But conciseness had been the President's aim, *Multum in parvo* his motto, and no other address containing matter of such value and importance to the Association in all its many evolutions had been delivered. The removal from Great Marlborough-street was an event second to none in importance in the history of the Association, though the move into the Great Marlborough-street premises must at the time have seemed just as great a leap in the dark. With the knowledge gained in the past, and with the success which had so far attended their efforts, he thought they could go forward in the strong belief that their endeavours and sacrifices—enormous sacrifices of time and money on the part of many—would not be lost either to the profession or the nation. He congratulated the President on being able to make the announcement he had. They were all glad to see a man of the President's standing in the chair for a second year—"a man who is a good architect, a good fellow, and is anxious to devote time and energy to the welfare of his younger brethren." The announcement made that evening meant that the Association was really progressing with true life and energy. The work which had been done in the Studio, for instance, under the careful guidance of Mr. Lewis, had been of very great value to students. Then, again, the enthusiasm of the lecturers, amongst whom were some very able men, who had come forward to impart their knowledge to others, had inspired many students to persevere. In speaking of the day classes, he must again mention Mr. Seth-Smith, who was the originator of these classes to a large extent, and to whom they owed a debt of gratitude for what he had done in the matter. The knowledge of the existence of the school should, as the President had said, be brought before the heads of public schools and teachers, but it should also be brought before the notice of members of the profession. Parents often came to architects and asked them to take their sons as pupils, but in future it would be a good and proper thing to send these pupils for one year to the Association school before letting them come into the office. He had tried it, paying the fees of the student, which seemed only right and just. He was sure that such students would do justice to the school. The President had not lost sight of the value of the social side of the Association. There was in the Association an *esprit de corps* which did not exist in all societies—that club-like feeling which existed in the Common room, during the Excursion, and in other ways, and made the carrying on of work not so hard and machine-like—made it, in fact, more of a pleasure, and made students feel that they were working with one common object. The members of the Association ought to take to heart the appeal of the President for funds on behalf of the new premises. It seemed remarkable that so few members had responded to previous appeals. Some, no doubt, were unable to help; but so far only one-fourth had done so. Surely no one who had the interests of the profession at heart could fail to have sympathy with the movement, and he heartily supported the President's appeal. He was glad that the President had referred to the fashion of speaking slightingly of the Gothic revival. The fashion existed, but it surely was the result of ignorance, and could not be followed by those who had studied what these early revivalists did, and the motives by which they were led. Their enthusiasm had been of enormous value to us in whatever style of architecture we design. The President had said that the work of the revivalists was not lost, but that the leaven was still working. Surely that was so! He wished that we saw to-day more of the enthusiasm which animated the Gothic revivalists, including men like those whose names had been mentioned and others who were not so well-known, and who were always ready, sketch-book in hand, to study all styles, and not necessarily Gothic. That was the chief point. It was not a question of style—the Gothic, Classic, or Renaissance—but of seeing what was good, and trying to see what was good in all work, ancient or modern; and he hoped that by its students the Association would help on that spirit. "First try to find out the good in all work, and not the bad. Let us find the good points, and study them with a broad and sympathetic mind." He was glad to hear the President's remarks on Japanese work. They welcomed the presence of a Japanese architect amongst them, for they valued the beautiful art of his country.

Mr. J. S. Gibson seconded the vote of thanks. The President's address would interest them as architects, for the facts he had put before the meeting were of great moment, affecting, as they did, the future of the Association. There was no doubt that the work of the Association was one which affected the welfare of the nation. The beauty of our streets and cities was largely in the hands of architects, and as ordinary citizens they ought to do everything to interest the Government in their little part of the work of the world. As voters, probably they did not carry much influence, but however small, it should be brought to bear upon political bodies with the object of getting help to clear off the debt the Association had incurred. He had listened to a good many presidential addresses, and it had always astonished him how the Presidents had found anything new to say, but year after year their Presidents had come forward with interesting and valuable addresses. The President had referred to the days of the Gothic revival, when the great battle of the styles was on, but they all knew that we live in very changed times. During that period, the battle of the styles was probably the most enjoyable comedy to the bulk of the people, and if they took up the literature of the period—the writings of Pugin, for instance—they would, even though they knew little or nothing about architecture, enjoy it greatly, so clever was it, and so full of fun. But now we live in days that are antagonistic to this, for there were many rival forms of entertainment—musical comedy, etc.—which more readily interested the bulk of the people, and it was hardly to be expected that such abstruse questions as to Gothic or Classic styles suitable for the climate of this country should take hold of the people.

His Excellency Viscount Hayashi, in supporting the vote of thanks, thanked the Association for electing Mr. Sudsuki as an honorary member. Mr. Sudsuki had already shown much promise before he left Japan, and a large field existed for the exercise of his professional skill. A Japanese architect had, besides and beyond ordinary architectural work, a great difficulty to contend against, and that was in the frequency of earthquakes. By examining and studying the methods of construction in European countries, it might be possible, as the President had hoped, for the Japanese artist to continue the art of his country; and not only to continue, but perhaps to find, from the study of the work of enlightened followers of European art, a means of improving native art. Many tourists and travellers in Japan had written and spoken to the effect that a Japanese house is no more a house than a tent-like erection supported by posts, and could only last a short time, and no doubt they might think from this that Japanese houses were blown away by the first shock of earthquake, or burnt up by the careless use of a lighted match. He had been asked by several people in this country how a Japanese house stood a heavy shower in summer time or a heavy snowfall in winter, and no doubt it was generally thought that these houses were nothing more than houses of cards, and that they could not last long enough to be called old. Such ideas were incorrect, for there were many old houses existing. As to the houses being built low because of earthquakes, there were many buildings in various parts of Japan five stories in height, and there were many pagodas 150 ft. to 200 ft. high, built on a comparatively narrow base, which had stood for the last 200 or 300 years. The oldest building in Japan he knew of was called the Shō ō u, Nā ā, in the province of Yamato, which used to be the capital of Japan long ago. These buildings had been used to store the personal effects of an Emperor who existed 600 years ago, and they were more than 1,200 years old, and there was no reason why they should not continue for another 1,000 years. Buildings in the former capital of Kyoto had existed for 800 years, and buildings 200 and 300 years old were to be found in every part of the Empire. If they thought of the antiquity of the Tower of London and Westminster Abbey, and then of some of these buildings, they would surely see that there were some elements of strength in them, but at the same time perhaps some principle of European art might be discovered which would strengthen and improve the buildings of Japan.

Mr. Arnold Mitchell, in supporting the vote of thanks, said that the statement they had just heard that some Japanese buildings dated back some 1,200 years must astonish a good many of them. He did not know that any of our buildings, that were complete buildings, went back anything like that time. On an occasion like that their chief interest was to congratulate the President on the commencement of another year of office, and to wish the Association one more year of prosperity. Mr. Hare had set them one excellent example, *i.e.*, that the only road to success was that of downright hard work, for there was no man in the profession who had worked harder than Mr. Hare, and no one, as a consequence, occupied a more honourable position. Mr. Hare was a sort of pioneer, for he was the President for the time being who would inaugurate the new premises, which were the most interesting premises the Association could possibly move into. They should hear what foreigners had to say about the Architectural Museum in London. In no country in Europe was there a more interesting collection of mediæval casts than there were in that museum, and, largely because of the trouble Mr. Hare had taken in the matter, they were to step into this rich heritage. He hoped that when Mr. Sudsuki returned to Japan that he would take back, not all he would see—for he might see much that he ought not to see in European architecture—but all that he ought to take back; and in their President's work he would see what he ought to take back. Then there was another matter, *i.e.*, the value of the Association schools in relation to the architecture of the future. They knew with what success the Day School had been started, and they knew with what success it had been carried on, but they must not forget, as Mr. Prynne said, the work of the old school under

Mr. Lewis. He would like to add his tribute as to the invaluable work Mr. Lewis had done for the Association. Few of them had had the advantage of studying in the new Day School, but many of them had started their career, in all their ignorance, in the Evening School, under Mr. Lewis. Evening after evening it had been, and was still possible, to learn under Mr. Lewis.

Mr. Henry Lovegrove supported the vote of thanks to the President, and congratulated the Association on having arrived at a definite point in its career. He hoped that its successful history would be continued, and that good men would continue to come forward to help on the work. At the time he was working in the Architectural Association the idea of an educational scheme came like a gleam of light in the eastern sky. To-day the light seems approaching the meridian. As to the buildings of Japan, he did not think they could be improved as the result of a study of buildings in other countries. Japan had at least one advantage—it did not seem to have a Building Act, and architects there did not build their brick walls with large battered buttresses and cover the whole with rough cast. He thought that what appeared to be the leading feature in the present-day architecture, outside Venetian blinds painted green, might be very useful in Japan. As to the work of Sir Gilbert Scott, he admired his St. Pancras Station, and thought it was a fine building. He was thoroughly in sympathy with the inauguration of the new Day School. Several people had been to him about putting their sons to the architectural profession, because they thought it was such a thriving profession, and he had advised them not to waste their money in putting their sons to cleaning drawings, etc., as pupils. He had advised the sending one pupil on to the Day School and he hoped to be able to do so in the case of another. In Mr. Maule, the new headmaster, they had a man of great skill, energy, and ability. He was glad that the Association was removing from Great Marlborough Street because students complained that the premises there were not healthy, and were detrimental to work.

Professor Beresford Pite joined in the congratulations. These annual addresses served a useful purpose if they made members look backward and look forward and try and get a general aspect of the profession, and take stock, so to speak, from their own point of view. The very instructive papers read at the ordinary meetings were more or less specially directed to one point, happily, and it must impress the non-professional mind that the members of the profession had to take up a great number of specialised subjects. Added to the necessity of the knowledge that these subjects indicated was that of enthusiasm for the architectural form of art. In recent days there had been a cry for architectural education, but that seemed about to be replaced by a cry for professional status. In looking backward and forward, the most important thing they had to consider was that they were an Association of students, with absolute liberty to think for themselves—a liberty which he hoped they would cherish amid all the advice of masters, and professors, and teachers, and papers, and curriculum. And he hoped they would maintain that sturdy enthusiasm for architectural art without which, and in the absence of prejudices, which were nearly as good—in fact, they were only products of enthusiasm—it could not exist. What was the standpoint of the student to-day? What was he looking at? He (the speaker) was pessimistic in regard to the architectural designs of the younger architects, in spite of Mr. Aston Webb, who was an optimist. Were they satisfied with the modern school of design? It was that question that the modern architect had to settle, and on the answer of the rising generation their architecture would depend. They could make it what they liked. In it would be read their mental position, infallibly, unmistakably. "Whatever that mental position is will be reflected in your work; and as we look at that work we shall see in it before long, not your education, not your training, but what you are yourselves, and what you aim at. And we shall go underneath the style, not perplexing ourselves whether Sir Gilbert Scott was finer at St. Pancras or at the Home and Colonial Offices—and see what the man thought. That is what we want, and what we do not get. So long as we are concerned with the clap-trap of style, so long shall we be unable to take a part in the art movement of the world. I want to leave this thought, that the art of architecture is as much an expression of human thought as music; that it bears as much an impression of intellect, of soul, of mind, as any other expression of human activity, and that among expressions of man's activity, architecture takes a very high place indeed. It has been said that of all impressions of human mental activity, literature is the highest, and that in literature poetry is necessarily the best; but there is room for great doubt about that. My mind was opened on that by Professor Flinders Petrie, who is not absorbed only in Egyptian mummy dust, who pointed out that there are aspects of feeling and thought which are too high to express in words. Literature fails; poetry can only suggest. Certain of these aspirations are, of course, readily expressed in music, and words will fail to describe the impression which grand and solemn music convey to the soul. Architecture is like music—though whether we are conscious of the existence of any recent works of architecture which are indescribable in words, is another matter. Architecture speaks to you, excites you, enthuses you in a way that words cannot. Take the solemn impression caused by Westminster Abbey. Describe the impression of the architecture! You cannot! You may take the Greek Parthenon, and be examined by the Board of Architecture as to its columns and all the rest of it, but they dare not ask you why it is beautiful. But we are conscious that it is. The architect has to get to the inner meaning of the thing. As he sits down to his measured drawings and plans they open this meaning, and these documents speak to him. Have you felt this? Has this spirit of architecture set you on fire? Until it does, you are not worthy to be called an architect."

Mr. Prynne then put the vote of thanks to the meeting, and it was very heartily agreed to.

The President, in reply, said he should like to refer to what Mr. Mitchell said as to the new premises. Mr. Mitchell had given him a great deal more credit than was due to him for the initiation of the new premises scheme. The credit was due to Mr. M. B. Adams, through whose enthusiasm the Association was able to avail themselves of such an advantageous offer. He would like to assure them how much he felt the honour of being elected a second time to occupy the chair.

The President then announced that the next meeting will be held on the 16th inst., when Messrs. Arthur T. Bolton and H. P. G. Maule will read papers on "The Day School in Relation to Architectural Pupilage."

The meeting then terminated.

MAGAZINES AND REVIEWS.

The *Magazine of Art* contains two articles on Whistler, the first of which, by Mr. Val Prinsep, is the most sane and moderately-written article on the late artist that we have seen; but then Mr. Val Prinsep does not belong to the clique of worshippers of whatever is odd and eccentric. Future generations, says Mr. Prinsep quite truly, will admire Whistler's art not because of his eccentricities, but in spite of them. "They will find that he has left much interesting work and some half-dozen pictures that may be called first-rate. After all, of how many of his contemporaries can more, or indeed as much be said?" That is a reasonable view of the subject, and about sums up the truth. Mr. Prinsep's personal reminiscences of Whistler show his amiable side, and entirely confirm the view we have already expressed, that his assumption of superiority and of contempt for every one else in art was merely a kind of joke. One remark of his which is quoted is interesting for the light it throws on Whistler's view of painting. There was a picture of his in which there was a ship, and he said, "a stupid painter out there" (Biarritz) "complained that I had not made out what kind of ship it was, but I said to him, 'to me it is not a ship, but a tone.'". That is the modern impressionist all over, and it is a perfectly false view of the art of painting; pictures painted on that system will not last. The other article is by the Editor, and is a general critical estimate rather more admiring in its artistic attitude. Mr. Spielmann observes that Whistler "was essentially a decorator, thinking primarily of the composition, the pattern, as the main element in his design." This quite agrees with the impression created by the above-quoted remarks about the ship; but a picture is something more than a pattern. Among the other articles in the number is one by Mr. Hamilton Jackson on "Electric Light Fittings of To-day," a very good critical *résumé* of the subject. The English examples illustrated, by Liberty and Co. and Verity and Co., are much better than the foreign ones, with the exception of the set designed by Herr Berlieus, of Dresden. Mr. Spielmann's essay on "Artistic Forgeries," Part V., is as interesting and instructive as its predecessors. Two illustrations are given of a casket lately presented to Mr. Chamberlain by the Constitutional Club, and designed and executed by Mr. H. Wilson. There is a little want of coherence and simplicity about the design, but in artistic feeling and effect it is a wondrous contrast to the kind of presentation-casket generally produced in England by Messrs. Middleman and Co.

In the *Art Journal* Lady Victoria Manners continues her article on "The Rutland Monuments in Bottesford Church," the illustrations to which entirely justify the space given to the subject. They are of great interest both in an artistic and historic sense. The monument to the 4th Earl of Rutland (1563-1587) is especially remarkable. Mr. Addison McLeod contributes an article on "The St. Anna Cartoon of Leonardo da Vinci," an interesting critical examination of four versions of the same subject, two of them attributed to other painters than Leonardo; but it is not very clear what is the main point and object of the article. The same number includes an article on "Cloisonné Enamel," with some interesting illustrations. The writer seems to think that cloisonné enamel has been neglected; we should rather be inclined to say that it had been overdone, as far as writing and illustration are concerned. At one time art publications were so constantly on the subject that one almost got tired of the words. It is a beautiful form of work, however, and one would not complain if there were more production of cloisonné enamel and less talk about it.

The *Architektonische Rundschau* commences by an illustrated article on lamp pendants and standards, chiefly as designed for electric light. Few of the designs are good, some of them very bad. Among the better ones are one of a hanging lamp by the Aktiengesellschaft, Berlin, and a corona of simple design by a Munich artist. The architectural illustrations, of about average interest, hardly present anything for special comment.

In the *Berlin Architekturwelt* the most important building illustrated is a large private mansion called the Palais Cohn at Dessau, by Herr Wessel. This shows a dignified street front of stone, with a recessed loggia with an Ionic coupled order on the upper floor in the centre portion; a cold and formal piece of architecture, but quite free from the eccentricity which is the bane of so much modern German architecture. The staircase hall is dignified and palatial in effect, showing a very sumptuous metal balustrade to the stairs, which however does not harmonise well with the simple stone (or marble) balustrade of the gallery. The Academy of Church Music at Charlottenburg, by MM. Adams and Mebes of Berlin, is a severe and unpretentious structure in a kind of Romanesque Gothic. There seems to be no fixed tendency in modern German architecture; we have sometimes, indeed too often, buildings of the most rampantly sensational character; then we come suddenly on designs, such as the two just mentioned, of almost severe simplicity. Following these indeed, in the present number of the *Architekturwelt*, are several examples of the gymnastics of the picturesque country house. Some studies of birds and animals by Herr Otto Köhler, very well reproduced, form two admirable pages showing quite exceptional talent in this class of work. Two sketches of old buildings by Herr Eberhardt, forming separate plates, are also excellent examples of reproduction from pencil drawing.

The September number of the *Burlington Magazine*, a publication which is issued to subscribers only (such a magazine could never be produced on the ordinary terms of public sale), commences, we are glad to see, a series of illustrated articles on that rarely-gifted though frivolous painter Fragonard—frivolous (sometimes worse) in his feeling and his choice of subjects, but a painter of real genius. Boucher's advice to him, quoted in the article, is highly characteristic of the

school and of the time—"You will see in Italy the works of Raphael and Michelangelo, but in confidence and as a friend I will tell you—if you take those fellows seriously you will be a lost man!" The society of the Louis Quinze age, indeed, could have had little to say to the genius of Michelangelo, nor would Fragonard have profited artistically by any attempt to emulate it; he would only have drowned his own really original genius in an attempt at a grand style. In his own way, however, he is almost inimitable. The illustrations in the present number do not show him at his best, except perhaps the "Music Lesson"; there are far more remarkable works by him in existence. We cannot share the admiration for the "Swing" picture in the Wallace Collection; it has not the *spirituel* character of Fragonard's best work, and as to subject, it is really a piece of vulgarity. The illustrations from Mr. Webb Singer's collection of eighteenth-century drinking-glasses are most interesting, and show an almost Venetian grace and refinement of line. Mr. Massé's article on the pewter in South Kensington Museum is accompanied by some splendidly executed illustrations of beautiful pieces of work. Some illustrations are devoted to the new panels in the Brussels Town Hall, which are pictures rather than decorations, but pictures with a very good purpose—that of preserving the memory of scenes and sites which are being destroyed in the course of engineering works and public improvements; it would be well if London followed the example, and made a point of preserving a record of the aspect of places which are being spoiled or destroyed in the march of "improvement." There is much other matter of interest and many other fine illustrations in this issue of the *Burlington*, a publication which is a boon to lovers of art in its contents and its form and make-up; we hope it will receive sufficient support from subscribers to keep it up permanently.

The *Antiquary* contains an article by Miss Isabel Robson on "Bridge Building in the Middle Ages"; on the general history, not the structure, of mediæval bridges. It is noteworthy that the Early English bridge over the Trent at Burton, of thirty-six arches, served its purpose to as recent a date as 1864; a testimony to the soundness of its construction. We do not see any allusion to the very long late Gothic bridge over the Tweed at Berwick. An interesting article is that by Miss F. Moore on the Isle of St. Honorat, near Cannes; an isle of sacred memories.

In *Knowledge*, readers who are interested in radium will find a long article on the subject, which may be regarded as a summary of what is known about it so far. The subject of "Man's Place in the Universe" again turns up in the shape of a comment by Mr. Walter Maunder on Dr. Wallace's reply to his critics; in all of which we agree except as to one statement made in passing, viz., that even if dark stars (all in movement) were a thousand times more numerous than the bright ones, the chances are a million to one against any diminution of the light of a bright star, by a dark star passing before it, having ever been observed. But the new astronomy believes that the bright stars are only the result of collisions among innumerable dark ones. If the dark stars are innumerable, are the chances of occultation less than the chances of collision? It would be difficult to get us to believe that.

The *National Review* contains an article by Mr. F. B. Behr on "The Practical Aspects of the Mono-Rail." It may enlighten many persons as to the actual structure and working of this form of railway, and gives reason for thinking that this is really a form of railway safer from accidents of derailment at high speeds than the ordinary railway. Mr. Behr describes the horizontally acting guide wheels which remain in touch with the guide-rails at whatever curve by the action of a spring, which is adjusted so as to automatically counter-balance the centrifugal impulse when going round a curve, allowing the right inclination from the perpendicular for the particular curve, and no more. One can understand that a carriage which inclines to the curve is safer going round curves, just as a bicycle under similar circumstances is safer than a tricycle. And it is urged that whereas the safety of the two-rail carriage depends upon a flange of the depth of three-quarters of an inch, the mono-rail carriage depends on a flange of four feet deep, the height of the rail above the guide-rail. The writer seems to forget, however, that the ordinary railway carriage wheel does not depend mainly on the flange, but on the dishing of the rim of the wheel. However, the article is calculated to weaken the prejudice against the mono-rail, except in respect of the speeds contemplated. These may no doubt be looked upon as safe—so long as no unexpected defect occurs in rail or wheel; but that cannot be absolutely guarded against, and the effects of an accident at 120 miles an hour are such as the imagination does not like to contemplate.

In *Harper* Mr. Max Uhle, of the University of California, writes a short but able summary of what is known and conjectured as to "Ancient South American Civilisation," the old and half-effaced chapter of Mexican and Peruvian art. Two archæological expeditions into this part of the South American continent, undertaken at the cost of an American lady of wealth, have resulted in a change as to the traditional conceptions in regard to ancient Peru; things which were formerly believed to be contemporaneous being now recognised as belonging to different successive periods of cultivation. The collections gathered during the first expedition are now housed in the Museum of Art and Science at Philadelphia; those of the second will be exhibited in the future museum of the University of California. A third expedition is to be undertaken shortly. Some of the objects illustrated in this article show that bad taste in pottery and such articles is older than good; a duck with a handle and spout coming out of its back, a vessel formed of the head of a bearded man with the orifice at the top of the head—these we now rightly regard as monstrosities in taste, but they are among the oldest things known. It is only a more complete and less barbaric culture that rises superior to these eccentricities, as we now consider them, but which were once a prevalent form of art.

The *Pall Mall Magazine* contains an article by the Editor on Phil May as man and artist. As to the art, the article is a fair *résumé* of its quality, accompanied by some illustrations which are out of the usual run of May's sketches as best known, and show that he could draw other types of humanity as well as he drew the gutter-snipe. One of his latest sketches, "The Smoker," is an admirable piece both of character and of drawing.

In *Scribner*, under "The Field of Art," Mr. W. H. Low writes a good article on "The American Art-student in Paris," giving advice as to the way to make the most of the advantages which Paris presents to the art-student, and particularly dwelling on the serious manner in which art-training is undertaken, where the limit of age for the great prize of the art-student, the "Prix de Rome," is fixed at thirty years, entailing four subsequent years of study in Rome, so that the fully-equipped artist is not supposed to begin his career till the age of thirty-four. And Mr. Low contrasts this with the desire for rapidly acquired facility in a sketchy form of production which is too often the ambition of the American art-student, enticed by the commercial reward offered for rapid and facile illustration for magazines. He tells "a true story" of how an eminent French artist, whose son at the age of twenty had achieved a facility in coloured etching which became a fashion and gave him an early success of its kind, represented to the dealer who gave him these commissions that the young man was still under age, and that no further encouragement was to be given to him in this work. The son recognised that his father's decision was a wise one, returned to his severer studies, and four or five years after made a brilliant *début* at the Salon. Some remarks on the influence of the commercial spirit in regard to art-work in America, coming from an American critic, are significant:—

"Twenty years ago there was a most hopeful and promising school of etchers here. Lack of standard enabled anyone who could scratch a copper plate to put his wares on the market, the printsellers and department stores saw the business opportunity, and to-day etching here is virtually dead with none to do it honour. Almost at the same time the art of the glass stainer was reinvented, to all intents and purposes, in our new land, and there was promise that this most delightful of arts would flourish in the pious desire to commemorate our dead, translated through the sympathetic art of the designer. But no sooner had some notable results been achieved than the business sense of the American saw again his opportunity, and to-day, discredited by architects in their buildings though it may be, great business organisations turn out vast quantities of coloured glass, while in their offices stacks of alleged designs, appropriately assorted to the needs of widows, orphans, or building committees, await the moment when their commercial traveller, akin to the cheerful person known as the 'ambulance chaser,' can present himself in the house of mourning with his already prepared 'appropriate' design."

Longman's Magazine contains an article on "Egyptian Irrigation Works" by Mr. Lawrence Gibbs, M.Inst.C.E., which is a *résumé* of the subject, so written as to be fully intelligible to the general reader. It should have attention, for it gives a good idea as to what we have done for Egypt in this respect. As the writer concludes—"Enough has been said to show that if British rule should cease to-morrow the country would be the lasting gainer by our twenty years' occupation." The only thing we object to is the half-sneer with which "the archæologists" are referred to who were instrumental in preventing the total destruction of the temples of Philæ. Engineers, of course, think only of the present, never of the past; but if the result of our work in Egypt were to obliterate her ancient monuments the loss to the intellectual world would be a good deal more serious than Mr. Gibbs perhaps appreciates.

By a curious coincidence, the *Century* for this month actually contains a statement on the other side of the Philæ question, by Mr. A. Clark Robinson, which Mr. L. Gibbs had perhaps better read; it may be as well for him to know how the matter is regarded from a non-engineering point of view. The illustrations given, from photographs, of Philæ as it was and as it is, show how serious has been the effect on the beautiful and ancient remains. We quote a portion of Mr. Robinson's remarks:—

"Beneath the brilliant blue sky and perpetual sunshine of Nubia a tragedy is going forward, murder is being done. It is a sad spectacle, but, like all sad spectacles, interesting. . . . The world has rung with the praises of those who conceived and executed the 'Great Barrage,' the largest dam on the globe; scientific and enlightened Europe has held up its hands in admiration; Egypt expects to derive an increase in revenue of two million six hundred thousand pounds per annum and one third her present arable land. But there is another side to the picture. Thousands of people have been driven from their homes and forced to watch from a safe eminence their little mud huts, their fig and date-trees, their all, whether of livelihood or association, disappear beneath the waters of the river which they were wont to worship. There is now a lake where stood the two villages of Shellall and el-Monhata, and of the island of Philæ only a portion of the more lofty edifices struggle, like some over-wrought swimmer, to maintain their heads above the destroying flood. . . . There remains to-day above water only a portion of the colonnade, the top of the kiosk, and a part of the temple of Isis. The traveller approaches the ruins in a small boat, in which he may pass down the colonnade and row about in the once sacred chambers. It is a novel and interesting experience, but to those who were familiar with the island in all its beauty it is full of sadness. . . .

But the future is even darker. Already the soft stone is beginning to crumble, the water to thrust its persistent finger through this crevice and that; hour by hour the river, held in check by the great dam, creeps farther up the columns. The island is doomed. In a few years, perhaps months, perhaps even at the next flood-time, it will be utterly destroyed."

In the *Cornhill* will be found an interesting and useful article by Mr. W. A. Shenstone, F.R.S., on "The Constitution of Matter"—useful, because it brings within general comprehension an idea of the exceedingly refined researches which have been for some time carried on in regard to the constitution and behaviour of bodies too small to be known anything of except by reasoning and deduction from known mechanical principles, and from those phenomena which can be visibly apprehended. It is admitted that to some extent the conclusions arrived at by science in regard to the constitution and action of atoms are based upon assumption; but it is assumption with a very high degree of probability; and all educated people should know the outline of it, at all events.

In the *Gentleman's Magazine* Mr. E. V. Heward, in an article under the title of "The

Planet of Romance," gives an account of an astronomical controversy of the middle of the last century, now known to few, but in which no less a person than Leverrier took some part. This concerned the assumption of the existence of an inter-Mercurial planet; an assumption not in its nature improbable, but which was announced as a certainty by an amateur French astronomer, one Lescarbault, who declared that he had seen the planet with his own telescope, in transit across the sun's disc. Leverrier took the sceptical side, but seems to have found Lescarbault's observations and calculations much more connected and logical than might have been expected from the imperfect instruments at his disposal. However, the supposed discovery was finally discredited, and the subject is now only of interest as a nearly forgotten chapter in astronomical annals.

Among the variety of subjects treated of in *The World's Work* we may mention an article on "The National Physical Laboratory" by Dr. Carpenter. The article on "Russia in Manchuria," by Mr. Alfred Stead, includes some information in regard to the Chinese-Eastern Railway, together with illustrations of some of the bridges and other works on the line—of a popular, not of a technical kind.

The *Revue Générale* contains an article on "Les Phases de l'Assyriologie" by M. Delattre, a clear and well-written summary of the history of modern archæological research in Assyria, down to the latest work of the University of Pennsylvania at Nippur.

COMPETITIONS.

University College, Cardiff.—A special meeting of the council of the University College of South Wales and Monmouthshire, was convened on Monday, to receive the report of the assessor on the four sets of plans submitted for competition for the new college buildings to be erected in Cathays Park. It was resolved that the plans and designs marked A be accepted and forwarded to the Cardiff Corporation in accordance with the terms of the draft grant of the site. The successful architect proves to be Mr. W. D. Caröe, London, The buildings, says the *Western Mail*, to be erected on Cathays Park, according to his plans, are symmetrically grouped round a great court, but this is not entirely surrounded. On either side of the great hall are openings merely screened off in order to give architectural unity, but admitting at once of better airing and some view of the interior of the great court from Park-place. The great hall is thus an isolated block. Provision has been made for the preservation of the trees in the park. From the park the main entrance is on the central axis, and is emphasised by a loggia in the architectural treatment. From Park-place there are three entrances, one central under the great hall, and two gates in open screens between the blocks of buildings. The staff entrance from the great court is under the library, and axial with the great hall entrance from Park-place, the library and great hall being symmetrically placed, the first along and the second across the main axis. The men's and women's cloak and common rooms are symmetrically placed on either side of the entrance hall, from which they are separated by small courts screened off from the great court by a colonnade surmounted by bridges. A dominating feature of the plan is the formation of the interior courts architecturally screened off from the great court. These convex angle screens provide the entrances from the great court for men and women students respectively in corresponding angles of the building, adjoining the cloak-rooms of each. The ground level of the brick courts is conveniently lowered to allowed for the adequate lighting of the metallurgy department, research cellars, store cellars (if erected), and the shops under the sanitary blocks. A small inner court is also formed to serve as entrance to the engineering school and for the mortuary department attached to the medical school, whereby all mortuary operations can be carried on in entire privacy, and convenient access is supplied to the lift which connects with the anatomy school. The arrangement indicated does not unduly reduce the area of the great court. Three suitable and well-lighted positions for memorial statuary in the entrance-hall are indicated. The women's department is on the ground floor, and the rest of the teaching department on the first floor. Provision has been made for a library, and the council chamber has been designed to seat 82 persons. What are described as the future buildings include a physics wing, with rooms for the study of electricity, zoology, botany, geology, and mining, departments of chemistry, metallurgy, physiology, materia medica, anatomy, and engineering. The grand staircase leads up to the great hall, the landing being arranged to avoid a crush. At the platform end is a second staircase, which also serves the debating-room gallery, and for entertainments there is green-room accommodation for both sexes, also with its own staircase access. A gallery with organ space, if desired, and balustrade specially devised to aid acoustics, completes the scheme. The seating accommodation is, without crowding, for—on the floor, 1,000; in the gallery, 190; making a total of 1,190. In consideration of the indifferent head of water, a large tank will be paced in the theatre tower of the chemistry block. This will be filled by a pump in the engineering laboratory, or, failing the erection of that department, by a pump in the shop under the men's lavatories. This tank will be of large size to meet the exigencies of fire hydrant supply. The whole building will be lighted with electricity.

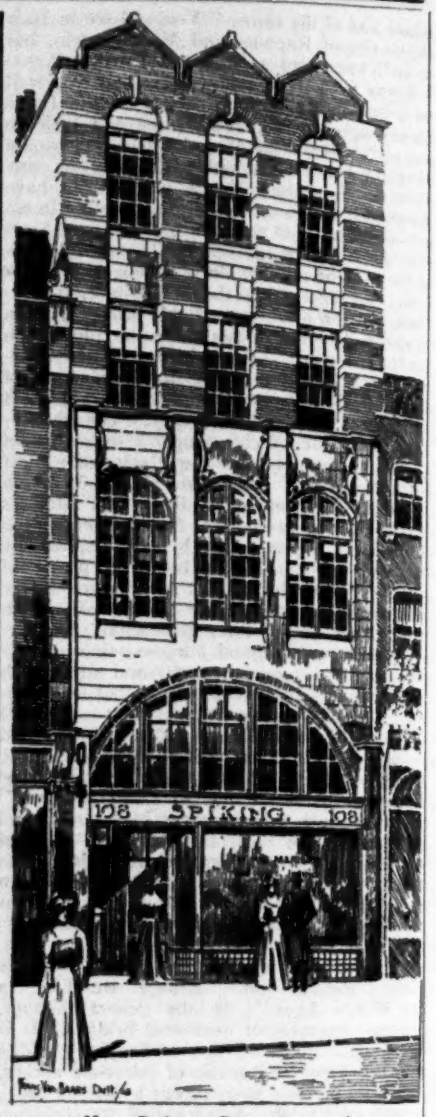
Pierhead Baths, Liverpool.—The Baths Committee of the Liverpool Corporation submitted the following recommendation on Wednesday:—"That the design for the erection of baths on the St. George's Dock site marked No. 6 be approved, subject to the elevations and treatment of open space being amended to the satisfaction of the Baths Committee, and that the author of the design, Mr. Alfred Saxon Snell, F.R.I.B.A., 22, Southampton-buildings, Chancery-lane, London, be engaged to carry out the scheme, and that he be paid a commission of 5*l.* per centum upon the original contract price of the building, in accordance with the terms of the conditions of the competition, and that an application be made to the Local Government Board for sanction to borrow the sum of 75,000*l.* to carry out the work."

Railway Station, Johannesburg.—Eight designs for the new railway station and offices in Johannesburg were submitted. The successful competitor is Mr. T. A. Moodie, A.R.I.B.A., architectural assistant to the Chief Engineer of the Central South African Railways. The work is estimated to cost 400,000*l.*

Board School, Fraserburgh, N.B.—In the competition for a new higher grade school for Fraserburgh, the plans under the motto "Scholastic," by Messrs. D. and J. R. McMillan, of Aberdeen, have been selected.

Subways for Gas and Water Pipes, etc.—A meeting of the Court of the Company of Paviors was held on the 30th ult. at the Great Eastern Hotel, when the Master, Major Lewis Henry Isaacs (Mayor of Kensington), declared the awards in connexion with the recent competition by essays, drawings, and models on the subject of "Subways, or other means of placing and maintaining without interference with the surface the main pipes and services of gas, water, and other undertakings below the carriage ways or footways of cities, boroughs, and towns," as made by the judges, viz., The Master; Mr. D. J. Ross, Engineer of the City of London; Mr. J. W. Bradley, Engineer of the City of Westminster; and Mr. William Weaver, Engineer of the Borough of Kensington. Twenty-six competitors submitted essays, drawings, and models, and ultimately the awards were made as follows:—First premium, 105*l.* to Mr. R. M. Parkinson, 93, Lincoln-road, Peterborough; second premium, 31*l.* 10*s.* (competitor's name at present unascertained); third premium, 21*l.*, Mr. F. M. Royle, A.M.Inst., C.E., Third Avenue, Sherwood Rise, Nottingham. The premiums will now be remitted to the first and third prize-winners at once, and to the second competitor as soon as his name can be ascertained. It is hoped that the drawings will shortly be on exhibition at the Guildhall, London, and that Mr. Parkinson's essay will be published in due course.

Workhouse, New Cross, near Wolverhampton.—A new workhouse, which has been erected for the Wolverhampton Board of Guardians at New Cross, near Wolverhampton, was recently opened. The new buildings have been built on a site 50 acres in extent, and will provide accommodation for 1,246 poor people, 20 nurses, and 60 other officials. The total cost of the scheme will amount to nearly 200,000*l.* Mr. Marchall is the architect.



New Bakery, Brompton-road.
Messrs. Blangy & Van Baars, Architects.

NEW BAKERY, ETC., BROMPTON-ROAD.

These premises, of which two plans and the elevation facing Brompton-road are shown, will be finished and occupied during the course of this year.

The ground floor consists of a large bake-house 11 ft. 6 in. high, containing 10 English ovens of the latest and most approved pattern, built on the double decker principle, the lower ovens being worked from pits sunk in floor, and having iron sliding covers to same. A drying-room also is provided in the centre. The breadroom adjoining has accommodation for over 4,000 loaves.

In the basement, the men's lavatories, water-closets, and lockers have been placed, with a cellar for 10 tons of coal, which will be hoisted into bakery as required, with a special hoisting appliance. A large store room has also been provided.

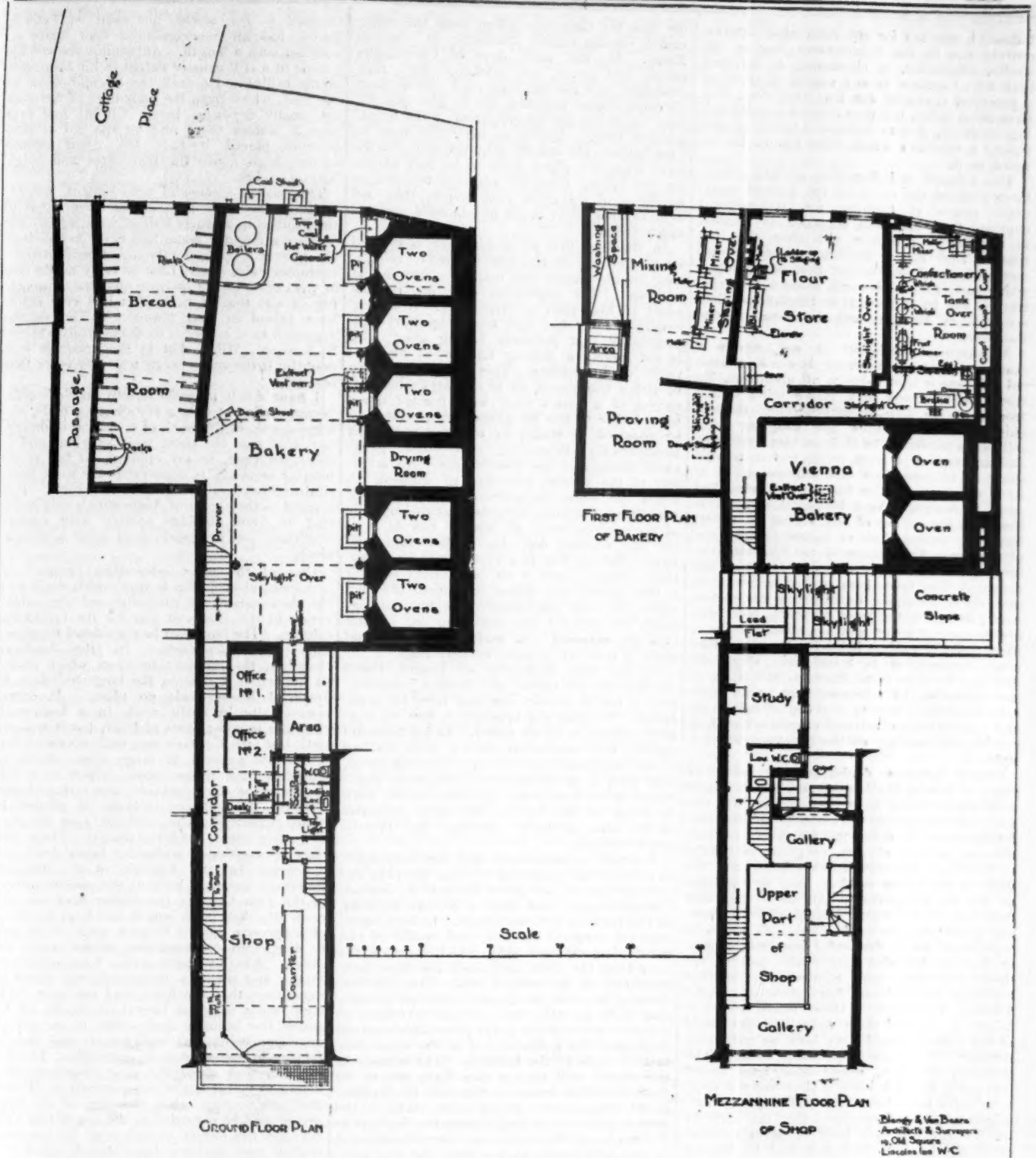
The Vienna bakery, with two ovens, is situated on first floor, with a confectionery-room adjacent and a flour-room, capable of storing 70 tons of flour, in which the blender and elevator is situated.

In the mixing-room two electric-driven dough mixers are placed with sifters over. A dough trough washing space adjoins this room. The proving-room has a capacity for 12 troughs and a shoot delivering into bakery.

The whole of bakery interior is being built with white glazed bricks, and will have a dado of salt glaze, with a skirting of blue Staffordshire bricks, all angles being bull-nosed. The floors are all fireproof, and are finished in terrazzo mosaic, executed by Messrs. Diespeker, of Holborn-viaduct.

Special construction has been adopted to reduce vibration to a minimum and to prevent heat penetrating into adjoining owner's premises, the ventilation also has had careful consideration and can be easily regulated as necessary.

The front part of building will be occupied by shop and gallery (for refreshments), which is panelled in walnut. The panels in gallery have



New Bakery, Brompton road. Plans.

scenes in Dutch tiles inserted. The whole of the upper part will be given over to offices and flats.

The principal elevation will be faced with Lawrence's No. 1 T.L.B. red bricks and Bath stone, and the whole of building will be lighted by electric light with Nernst lamps in bakery.

The general contract has been let to Messrs. Turtle and Appleton, of Clapham Junction, S.W., and the oven-builders are Messrs. H. Smith and Sons, of Lambeth. The whole of the machinery is being installed by Messrs. Robert Morton and Sons, of Wishaw, N.B., and the hot water and steam supply by Messrs. Heaton and Sons, of Leytonstone.

Messrs. Blangy and Van Baars, of Old-square, Lincoln's Inn, London, W.C., are the architects, under whose supervision the whole of the works are being carried out.

MISSION COAST HOME, SALTCOATS, N.B.—On the 23rd ult. the new wing which has just been added to the mission coast home at Saltcoats was opened. The new structure is two stories in height, and a verandah runs the entire length of the buildings. Mr. Hugh Thomson, Saltcoats, was the architect.

ARCHITECTURAL EVOLUTION.*

BEFORE commencing my paper to-night, may I be allowed to say a few words about the work of the Chair to which I have recently had the honour to be appointed.

The Chair was founded in 1840, and is therefore the oldest chair of architecture in England. T. L. Donaldson was the first professor, and his memory is kept green in the college by the silver medals presented annually which bear his name; Hayter Lewis was the second; and the third was Roger Smith. Those who knew Professor Roger Smith will bear me out when I say that his kind heart and lovable disposition made him many friends. He was ever willing to give his time to younger men who came to him for advice, and his ripe experience was always at their service. My acquaintance with him, although slight, commenced many years ago, shortly after he was appointed to this chair. Recently I had occasion to see him two or three times on a certain matter, and nothing could exceed his courtesy and kindness. His death will, I feel certain, be keenly felt by the many who during his long tenure of the chair had the good fortune to be his students.

Professor Roger Smith, like his predecessor, confined himself chiefly to lectures arranged for students whose work in the daytime in offices left them only a few spare hours for outside study. No other course, doubtless, was possible in the days when the pupilage system was the only method by which men could study to be architects. But architectural education, like education in other subjects, is undergoing a change. The pupilage system will continue, but it seems probable that it will continue in a modified form. It will continue, because only in an office can men get thoroughly in touch with actual practical problems and learn the inner mysteries of their profession; it will probably be modified because the feeling is growing that to enable a student to reap the full benefit from the work placed before him in an office, a preliminary training is necessary. Lectures after office hours are unsatisfactory for many reasons. Moreover, in any systematic course of study for our profession—and

* Inaugural address read at the opening of the School of Architecture, University College, London, on Wednesday, the 7th inst., by Professor F. M. Simpson, F.R.I.B.A.

I think I may say for any other also—interest centres not in the lecture-room, but in the studio, laboratory, or classroom, as the case may be. Lectures in any course of study of a practical character are but interludes; they have their value, but they require supplementing so much, that to make any course of real value, a student's whole time has to be devoted to it.

The Council and Faculties of this college have realised the necessity for a more systematic course of training for architectural students than has been regarded as possible in the past. I believe with them that the time is ripe for a departure from former methods, and I also believe that before many years have run, University courses in architecture will be as general in England as they are now in America, and in some of our Colonies.

Architectural evolution is not merely a matter of academic interest. It has its practical side which is of value to all architects. To trace the workings of a man's mind in his work; to see how, ever observing the requirements of his time and adapting himself to his materials, he took an idea from here and an inspiration from there, and so treated them as to give them new expression, is in itself excellent practice for all who are called upon to design. As a historical study it is the most fascinating of any. That all styles, from the earliest days of Egypt to the time of the great Renaissance of the fifteenth century, form an unbroken sequence, few will deny. A few links here and there may be missing in the chain, especially in the earlier work, owing to the lapse of years, but these are becoming fewer and fewer daily. In a short paper like this it is impossible to mention every instance, or to trace every step. All that can be done is to illustrate the truth of the contention by reference now to an individual building, now to a group of buildings, and now to some constructive point which had considerable bearing on the development of a style.

Other instances doubtless will occur to many of you of like importance, which might with equal fitness have been given. Of the many factors which determined architectural development in different countries and at different periods, climate, religion, the nature of buildings, the materials available, and the state of the labour market, may be regarded as the most important. All these exercised their influence in turn. Rome, with its teeming population enclosed within its walls, a population which demanded not only houses to live in, but also vast public palaces for their recreation and amusement, required buildings very different from those of simpler Athens. To have built these, many stories in height as most of them were, with the lintel of the Greeks would have been an extremely difficult, if not an impossible, task. The Romans, therefore, would have been forced into using the arch, even if they had not early acquired a taste for it from the work of their neighbours the Etruscans. But the arch by itself would not have been sufficient to overcome all the difficulties they had to contend with in the erection of a huge building such as the Colosseum, if it had not been that, in the neighbourhood of the city there existed ingredients which formed a remarkably strong cement. This enabled them to use concrete to a far greater extent than had been done before, or has been possible since. For the mixing of the concrete and its employment for walls and vaults, unskilled labour was all that was required.

The Greek temple, with its small naos and external peristyle, was eminently appropriate in a country where the people lived much out of doors, and where public worship was performed outside and not inside the building, but when Christianity became general, the services demanded a different type of building even in countries where the climatic conditions were much the same as those of Greece. The changes which were made are well illustrated in the present cathedral of Syracuse, which is one instance out of many of the conversion of a temple into a church. A wall was built between the columns of the external peristyle, so that the ambulatory became the aisles; openings were pierced in the naos wall to connect the aisles with the nave, and a chancel was built out at the east end. The entrance was reversed, and the posticum of the temple became the porch of the church. When new churches were built, the idea for these was taken from the colonnaded timber-roofed basilicas of ancient Rome. In the early days of Christianity money was scarce, and workmen, as a rule, unskilled, and the basilican plan and methods of construction provided the largest possible floor space for the congregation at the lowest possible cost. Moreover, after the time of Constantine, old marble columns to divide the nave from the aisles were to be had almost for the asking from the ruins of the secular buildings of the great city, and by their aid a decorative effect could be obtained without much expense.

In claiming that all architecture is evolved from previous efforts, one is merely reiterating the old truism that nothing comes out of nothing. The contention does not rob an artist of his claim to originality. It merely emphasises the fact that true originality—the originality that produces lasting good, and is not merely a passing fashion—is the outcome of knowledge. This knowledge may be either traditional, as in the days when the secrets of a man's craft were handed down from father to son for generations, or it may be acquired by study, as was the case with Brunelleschi, Bramante, and other great early masters of the Renaissance. An architect of the present day has to conform to much the same requirements, and to work with much the same materials, as the myriads of his predecessors. All that he can do is to try and advance one step further than they have. Behind him is a vast store of accumulated treasure, and if he can extract from it a few grains and infuse into them his own spirit, his own individuality, he has done as much as anybody can expect to do. What is "art nouveau" is seldom true art, and what is true art is never entirely new.

To say that Anthemius of Tralles learnt much from his Greek and Roman predecessors, is not to detract one iota from his reputation. To hint the opposite is only to suggest a doubt as to his sanity. In his beautiful detail, the inspiration drawn from ancient Greek mouldings and carvings is so undoubted, that even if the connecting links were lost—which is far from being the case, as the work in Syria of the fourth and fifth centuries shows—the similarity between the two is proof enough.

Not quite so apparent at first, but really quite as great is the connexion between the plan and construction of his great Church S. Sophia, Constantinople, and such a Roman building as the Basilica of Constantine. In both buildings the supports are few, and consist of two great piers on each side, which separate the nave from the aisles and mark the three compartments of the central area. The side buttressing to resist the thrusts is similar in both, and each building has or had a screen of columns between the great piers which served to support the galleries and at the same time to give scale to the building. The screens in the church still remain and form one of its most beautiful features; those of the basilica have long since disappeared. Where the church differs principally from the basilica is in the plan of the ends of the central area, and in the substitution of the dome for the intersecting vault. Each bay of the basilica is square and all three are equal. In the church the central bay alone is square, the ends are semi-circular, and opening out of each big semi-circle are colonnaded niches. The double apse arrangement is a Roman device. One of the large halls in the Baths of Diocletian, Rome, has an apse at each end the full width of the hall, and a similar plan was also followed in many of the entrance vestibules to buildings such as the baptistry of Constantine and the tomb of Constantia. The idea of the colonnaded niches is also Roman, if the restoration of the baths of Gallienus, of the 3rd Century, are correct. Even if they are not, S. Sophia is not the earliest Byzantine building in which they occur. They form the most characteristic feature of the interior of some of the circular and multangular churches of the period. Of these S. Sergius, Constantinople, San Lorenzo, Milan, and S. Vitale Ravenna were commenced before the old church of S. Sophia was burnt and consequently before the design for the new one was made. But although the idea was old, the application of it was new. The plan of the central nave of S. Sophia is as though one of these circular buildings had been cut in half and one half tacked on to each end of a central square. The result is a noble hall which for about 220 ft. has an average width of over 100 ft. No other building of architectural pretensions in the world, not even S. Peter's, Rome, has an unencumbered floor space so wide for such a length. Anthemius showed his genius to a still greater extent in his treatment of the ceiling. He took the circular dome of the East, which from the early days of Assyrian art, many centuries before Christ, had ever been a feature there and by the aid of pendentives placed it over the great central square, high above the transverse and longitudinal arches.

This was a wonderful achievement, not because of the mere span of the dome—that of the Pantheon is nearly half as wide again—not because a circular dome had never before been placed over a square by the aid of pendentives—examples exist in the East as early as the 2nd or 3rd Century—but because no dome approaching in size that of S. Sophia had ever before been raised in that manner. The nearest approach to it is the 80 ft. dome which covered S. Lorenzo, Milan, but in this example it is doubtful if the space below was ever other than octagon.

I have dwelt at some length on S. Sophia, because it is not only a standing example, and a great one, of the truth of evolution in design, but it is also the most truly original and at the same time, in my opinion, so far as the interior certainly is concerned, the most beautiful architectural creation in the world. It is a proof of the extent of Anthemius's originality that he could combine eastern with western traditions and yet produce so great a masterpiece.

One of the most interesting chapters on architectural evolution is that which deals with the development of groining and the substitution of the clustered pier for the cylindrical column. The two must be considered together; they are inseparable. In the basilican churches, the intersecting vault which played so important a part in the large buildings of Imperial Rome finds no place. It occurs occasionally in early work in a few small churches in some parts of Italy, but it was not until the 11th Century was well advanced that it became general in large ones. Basilican churches have timber roofs, which as a rule are ceiled on the underside—the 15th and 16th Century flat coffered ceilings at present in many of these churches probably took the place of earlier ones of similar design. These ceilings are continued without a break from east to west. In the Church of S. Miniato, Florence, however, built at the commencement of the 11th Century the timber roof over the nave is broken in its length into bays by means of transverse arches thrown across from pier to pier, with corresponding arches across the aisles. Whether these arches were introduced in the first instance because it was found by experience that the lofty, and not over thick, nave walls required lateral abutment, or because the builders had come to regard an unbroken ceiling as monotonous and unsatisfactory in appearance, is uncertain. The fact remains that about the time mentioned they began to be used, and consequently S. Miniato and one or two other churches of the same period may be regarded as the connecting links between the earlier church with its unbroken timber roof, and the later church which was divided into bays, each bay being vaulted.

The vaults themselves were at first constructed much in the same way as the Roman vaults without transverse arches, except that they were not so massive and heavy. The first alteration was that transverse arches were added, and the vaulting formed into bays. This innovation, slight though it appears at first, led to important changes. Diagonal ribs were next introduced under the groins—or points of intersection of the vault—and these, together with the transverse arches, formed a skeleton on which rested the severeys, or compartments of the vault. The vault now became a groined and ribbed vault which required specially designed piers to support its different parts. The cylindrical column was ill-adapted for the purpose, although it is true that in some of the finest of the mediæval churches in France it continued to be used a century after the principle of vault supports had been perfected. The clustered pier therefore took its place. Piers, oblong and square in plan, had, it is true, been occasionally used in certain places in some basilican churches before this, but for the development of the complicated clustered plan from these more simple forms vaulting is entirely responsible. The change commenced with the introduction of transverse arches. In the small church of S. Eustache, Milan, of the 9th or 10th Century, in which arches span the

aisles but not the nave, the piers are not oblong but T-shaped, and the arches rest on the ribs at the back of the piers and on corresponding pilasters on the aisle walls. When arches spanned the nave as well as the aisles the piers became cruciform. In S. Miniato, Florence, those that support the transverse arches are quatrefoil in section. This form or the cruciform, was satisfactory so long as only transverse and longitudinal arches were employed, but as soon as diagonal ribs were introduced it became insufficient, and shafts had to be inserted in the four internal angles of the cross to support them. In the nave of S. Ambrogio, Milan, built in the second half of the 11th Century, the system is complete, and every rib and arch has its corresponding member in the pier.

The buildings of the 11th and 12th Centuries throughout Europe are heavy in appearance and massive in all their parts, but as the workmen grew more skilled the work becomes much lighter. Nowhere is the change so conspicuous as in the vaulting and in the size and form of the piers. It was soon discovered that there was no necessity to carry the groining shafts down to the floor, and that they were better corbelled out from the wall, as then they offered more resistance to the thrust of the vault. Sometimes the corbelling is just above the piers as in Exeter and Lincoln Cathedrals, sometimes it is at the level of the string course above the arches of the arcade, as at Carlisle, and sometimes higher up still above the triforium, as at Salisbury and Wells. In consequence of this change the piers could be made more slender, and beautiful forms such as are to be seen in Exeter Cathedral and in other churches of the 14th Century were the result. Other modifications all tended in the direction of lightness. As the number of ribs of the vault increased, instead of attempting to provide a separate skewback and separate support for each—which in England would have been impossible in late work owing to their number—the builders brought them together to a common springing and the *tas-de-charge* with its many advantages, was produced. In France the architects, as a rule, even as late as the end of the 15th Century, clung to the simple and dignified quadripartite vault, in which only transverse arches and diagonal ribs are employed. In England, however, they departed from it and multiplied the ribs to such an extent that the vault became a net work of ribs so close together that little room was left for any filling in. As soon as this point was reached the reason for the construction followed for so long disappeared, and the workmen said to one another "Why form a skeleton and fill in afterwards? Why not build both rib and filling in together?" Thus was born the fan-vault—an English design pure and simple, and a logical outcome of the multiplication of ribs—in which both moulded rib and panel are worked on the same stone.

I have taken groining as an illustration because it is the most characteristic feature of mediæval architecture, but a similar sequence of development is just as noticeable in other parts of a building. I might have shown, for instance, how the design for the blind arcading on walls changed its character until the large windows of the fourteenth century left little wall space on which arcading could be placed, and how, as the windows became more and more like panels pierced for light, what wall space remained was covered with sunk panelling to such an extent that in some churches, especially in those which retain their old stained glass, it is often somewhat difficult to tell at a glance which is wall and which is window.

The shock of the Renaissance, first felt in Italy at the commencement of the fifteenth century, was a shock which the builders there richly deserved. In England it came 100 years later, partly because the traditions of mediæval art were far stronger here than in Italy, and partly because the revival of letters had not yet taken a strong hold in this country. The great men of the Italian Renaissance, in seeking for inspiration from the ruins of ancient Rome, did a grand thing for architecture. They felt that the old art was moribund, and needed strong measures to bring it back to life. They had no qualms about taking hints from their predecessors of centuries before; from the men who built so sturdily, if somewhat roughly, and on so noble a scale. They felt that in the old buildings there was a virility that was deathless. The more they studied them the more they became imbued with their spirit; and in this absorbing process they lost none of their own individuality. They sacrificed nothing to archæological correctness. They never allowed tradition to interfere with utility. They abandoned none of their building science—science which had been accumulating for centuries; in fact they added to their store. No one can say that Brunelleschi's dome in Florence is a copy of anything which had gone before. Its construction is different, its form different, and its detail. Sansovino's library in Venice, although reminiscent of the Colosseum, only shows what can be done by a man with fine ideas and rich imagination, who is also a student of architecture. Peruzzi's charming Palazzo Massimi in Rome—a gem which stands alone amongst the colour-washed palaces of the city—has a refinement which no ancient Roman building possesses, and shows that the Greeks had not taught in vain the value of simplicity and the full beauty of the lintel. These men picked up anew the thread of Classic traditions, which, although entangled for centuries with other threads, had never been entirely lost in Italy. Their work, although not coming in natural sequence like the Byzantine, Romanesque, and Gothic, has still a place in the history of architectural evolution. It was not so much a Renaissance as a recovery.

What chance have we to-day of a similar recovery in England? The conditions which exist here now are not so far different from those which prevailed in Italy in the fifteenth century. It is true that the fine traditions, started by Inigo Jones, and continued by Wren and his followers, were all destroyed by the two revivals of the last century, but we still have their buildings almost as fresh as ever. The lapse of years since they were built is trifling compared with that which separates the early days of the Italian Renaissance from the time of the Roman emperors. The threads ought not to be so difficult to pick up. In fact one may fairly say, when one considers much of the work of the last ten or fifteen years, that this has already been accomplished. How long, however, shall we continue to hold them? When one remembers the see-saw of the last half of the century just passed, he would be a bold man indeed who would venture to prophesy. And yet agreement amongst architects is absolutely essential if our art is to progress as it should progress. No art can advance satisfactorily when its exponents are pulling in different directions. Such a state of things is bad for architects, and worse still for workmen, as they are called upon to work in one manner one day and in another the next. Is it to be wondered at that under the circumstances they so often fail to take an interest in what they do? It is unsatisfactory also for the general public, who, seeing no standard, are apt to believe that there is no art.

For a real advance, harmony between architect, builder, and client, is essential. It existed in the eighteenth century in England, it existed in the fifteenth century in Italy, it is the secret of the strides made by architecture in the Middle Ages. It is true that in one sense the old war of the styles is now over. It is true that men are no longer eager to cut one another's throats over the rival merits of two phases of architecture, or to dispute with each other regarding the correctness of the curve of a moulding. But is it peace? There are still two camps. There are still Classicists, although they are no longer pedants, and there are still Romanticists, although they have ceased to be mock-mediæval. A fusion between the two, if it be possible, although it would take time, would be worth some waiting for. Some years must elapse before one can be expected to lie down with the other. But as the Classicist gets a little more playful and the Romanticist a little more formal, the two may meet. After all, the principles underlying good work are much the same in whatever language they are expressed, and the differences perhaps are not so great as appear on the surface.

In the last century men fell into the evil of a too literal rendering of old work, but that is no reason for going to the other extreme and ignoring it altogether. It seems to me that the folly is quite as great to refuse to profit by the successes and failures of the past as it is to remain indifferent to, and ignore new developments in building science. The masters of the Renaissance succeeded because, although they studied old work, they did not copy it. They blended its essence with the requirements of the time, and so produced new art. As they worked, so might we. What is wanted is a basis from which to start; something that the weaker can fall back upon, and the stronger advance from. And if there can only be agreement as to what that basis should be, there is every chance that the end of the century will see a traditional vernacular style once more flourishing in England, and that another chapter will be added to the history of architectural evolution.

THE LONDON COUNTY COUNCIL.

The first meeting of the London County Council after the summer recess was held in the County Hall, Spring Gardens, on Tuesday, Lord Monkswell, Chairman, presiding.

The Chairman's Address.—The first business was the reading of the Chairman's annual address. We take the following paragraphs from it:—

There is a special sub-committee of the Asylums Committee charged with considering the best methods of housing and treating lunatics. Among so many reformers one would hardly have thought such a committee necessary. The sub-committee have had under consideration sketch plans for a new asylum of a modified villa type designed by the asylums engineer, to whom the Council is much indebted for an immense amount of work of first-rate quality. The epileptic villa colony has been completed, but drainage difficulties retarded the reception of patients. The drainage is now connected with the Epsom Council's sewage farm, and there are now some 200 persons at the colony. We may hope that before long the plans for a villa asylum will be proceeded with; but for the moment the question of finding accommodation with the least possible delay has induced the Committee to recommend the Council to sanction the erection of a replica of the Horton Asylum.

The Bridges Committee, under Lieut.-Col. Sheffield, has again had trouble over the Vauxhall Bridge. For reasons which, if my memory serves me, are not exhaustively stated in the report, it has been decided to build the bridge of steel, instead of concrete with granite facings. This alteration will effect a slight economy.

The Building Act Committee, under the chairmanship of Dr. Longstaff, has been busy during the past year in considering the question of amending the London Building Act, 1894, with special reference to the safety of the inmates of high buildings in case of fire. A bill with this object was introduced, but encountered a great deal of opposition in Parliament, and the subject was referred jointly to the Building Act, Fire Brigade, and Parliamentary Committees for report.

The Establishment Committee had under consideration the question of the accommodation for the staff. It appears that only 481 persons are housed in the main building, and 578 outside. That is not an ideal state of things; but another feature is much worse—namely, the shockingly inadequate accommodation, both in the main building and elsewhere, for the persons in our employ who, in return for the excellent service they give us, are entitled to ask that the conditions of their service should be such as to afford them a reasonable amount of comfort in the discharge of their duties.

The extremely satisfactory feature of the fire statistics of the year is that the proportion of serious to slight fires, which has been decreasing steadily during the last five years, has now reached the very low figure of 1 in 46. This result is no doubt partly due to the gradual increase in the number of fire alarms, hydrants, and other appliances for dealing with outbreaks of fire, but also the brigade may justly attribute some part of the improvement to increased smartness and promptitude of the men in the discharge of their duties. Indeed, it seems to me that there can be no better test of the efficiency of the fire staff than the extent to which serious fires have declined.

The Parks and Open Spaces Committee thus summarises the work of the Council in providing open spaces—"The Council has already assisted in preserving for ever no less than 88 playing spaces for London, and has, as occasion has arisen, enlarged several of them, and also some of the places which were under the control of the Metropolitan Board of Works, and has expended about 600,310*l.* in so doing." During the year Avery Hill, 84 acres, was acquired for 25,000*l.*; Parliamentary power was

sought to authorise the purchase of about 41½ acres of the Eltham Park estate, the Woolwich Borough Council contributing one-half, and in the contract for purchase the Council is, on the insistence of the vendor, bound not to allow the sale of intoxicants on the land. At Golder's Hill the Council has endorsed the action of the Committee in throwing open an orchard of 2½ acres to the public. During the year the negotiations for the purchase of Marble Hill and for the preservation of the view from Richmond Hill proceeded satisfactorily. The owner of the estate adjoining Marble Hill voluntarily gave a valuable covenant not to build on a property adjacent to that estate, and in other respects very materially assisted the special committee having the matter in charge to bring the negotiations to a successful issue. On 28th February, Brockwell Park extension, 42½ acres, was opened by the chairman of the Committee, who also on 14th March opened Northbrook Park, 7 acres, and on 19th May (Whit Monday) the Manor House Gardens, 8¾ acres. On 28th Febraury, Wandsworth Park, about 20 acres, was opened. The Council agreed during the past year to buy two small open spaces in Stepney, amounting together to ¾ of an acre, for 13,000*l.*, towards which the vendor will contribute 3,000*l.*, and the Stepney Borough Council 1,500*l.* The most striking purchase of the year, and one that has been abundantly discussed, is the acquisition of 803 acres at Hainault Forest, outside the county, at a cost to the Council of 10,600*l.*, various societies and private persons, particularly Mr. E. N. Buxton, who has taken an immense amount of trouble in the matter, contributing the remainder—in round figures 12,000*l.*—or 22,000*l.* in all. The Committee estimate that an expenditure of 1,500*l.* on capital account, and 300*l.* a year for maintenance, will suffice. The conveyance to the Council of the Ranger's house, Blackheath, was completed during the year. The Council contributed 12,000*l.* towards the laying out of an addition (8½ acres) to Fulham Park, the Borough of Fulham undertaking to maintain the park. I may state that during the year the Committee has been instrumental in adding more than 1,000 acres of land to the open spaces of London.

The Works Committee under the chairmanship of Mr. Torrance, was constituted in March, 1902, not only to carry into effect the non-contract work of the Council, but also to make recommendations as to rates of wages and hours of labour in work carried on for, as well as by, the Council within the London radius. The Committee has, during the year executed work to the amount of 349,153*l.* 0s. 8d., of which 304,951*l.* 8s. 6d. consisted of estimated works and 44,201*l.* 12s. 2d. of jobbing work. For the year ended September 30, 1902, in the case of estimated works the balance of cost was 16,968*l.* 17s., or 7.47 per cent. below the final estimate, and in jobbing works there was a balance of cost below schedule value of 995*l.* 17s. 4d., or 4.15 per cent. The Council will observe with pleasure that no fatal accident occurred to any workman; but a sum of 1,515*l.* 14s. 1d. was paid to workmen sustaining injury, being considerably more than the legal obligation. The total capital expenditure on the Works Department up to March, 1903, is 112,267*l.* 2s. 4d., of which 15,462*l.* 14s. 2d. has been repaid. The value of the plant and machinery at the various depots was on March 31st last, 40,678*l.* 5s. 1d. The total amount paid in wages during the year was 171,601*l.* 13s. 9d., and some modification in the rates of wages and hours of labour have been effected.

The report of the Technical Education Board of which Mr. Ward is chairman, contains matter of the deepest interest. It is satisfactory to note the large increase in the number of trade classes from 121 in 1894 to 309 this year; the instruction, too, is much more complete than it was, and the classes larger. It is calculated the the number of apprentices and workmen attending has increased at least four-fold in the nine years. The number of artisan students in polytechnics is also increasing fast and steadily, the number attending in 1902 being 6,731, against 5,193 in 1901. The Board's evening exhibitions of 5*l.* a year for two years, in science and technology, have been much appreciated, and the demand for all grades of county scholarships greatly exceeds the supply. Polytechnic buildings are being enlarged in every direction, to a great extent out of a sum of 40,000*l.* provided by the trustees of the London Parochial Charities. The Council has also several buildings on hand in connexion with its own schools.

Loans.—On the recommendation of the Finance Committee the following loans were agreed to:—Bermondsey Borough Council, 5,000*l.* for paving works; Bethnal-green Borough Council, 6,000*l.* for a similar purpose; Hammersmith Borough Council, 2,942*l.* also for a similar purpose; Poplar Borough Council, 3,910*l.* for paving and channelling works; Shoreditch Borough Council, 869*l.* for furnishing offices, etc., at Town Hall; Fulham Borough Council, 13,509*l.* for various purposes; Hampstead Borough Council, 16,600*l.* for paving works; Woolwich Borough Council, 10,000*l.* for erection of public hall; Battersea Borough Council, 8,081*l.* for works at public baths; Camberwell Borough Council, 12,000*l.* for purchase of site and erection of buildings; Bethnal-green Guardians, 9,674*l.* for poor law purposes; Guardians of Wandsworth and Clapham Union, 3,250*l.* for the same purpose. Sanction was also given to the following:—Hackney Borough Council, 906*l.* for electric lighting works; and Westminster City Council, 1,383*l.* for street improvements.

Springfield Estate, Upper Clapton.—It was agreed to contribute the sum of 20,000*l.* towards the purchase of this estate.

Mitcham-road Widening, Wandsworth.—It was agreed to contribute not more than 11,091*l.* towards the cost of widening Mitcham-road to 60 ft.

Works Committee.—The Fire Brigade Committee recommended as follows:—

"That an expenditure of 7,300*l.* for the work of erecting the Kilburn sub-station be authorised; that the work be executed by the Council without the intervention of a contractor; and that the drawings, specification, quantities, and estimate be referred to the Works Committee for that purpose.

That an expenditure of 898*l.* in connexion with the electric light and electric bell installations at the Kilburn sub-station, and other incidental expenses arising out of the erection of the building, be authorised.

That an expenditure of 7,500*l.* for the work of erecting the Bayswater sub-station be authorised; that the work be executed by the Council without the intervention of a contractor; and that the drawings, specification, quantities, and estimate be referred to the Works Committee for that purpose.

That an expenditure of 848*l.* in connexion with the electric light and electric bell installations at the Bayswater sub-station, and of incidental expenses arising out of the erection of the building, be authorised."

On the first recommendation an amendment was moved to the effect that the work should be put out to contract, but it was defeated, and the Committee's proposals were agreed to.

Housing, Tooting.—The following recommendation of the Housing of the Working Classes Committee was agreed to:—

"That the terms of the contract with Messrs. Roberts and Co. for the erection of the cottages on Section B of the Totterdown Fields Estate, Tooting, be so varied that payments under the contract may be made at the rate of 80 per cent. of the value of the permanent work executed until the sum due and remaining unpaid shall amount to 5,000*l.*, and thereafter to the full value of the further work certified by the superintending architect."

Street Dangers.—Mr. Beachcroft moved:—"That, having regard to the serious interference with ordinary traffic caused by the passage through the public streets of heavy road locomotives, more especially when drawing trucks; to the danger to the public from the terrifying effect such locomotives have upon horses; to the injury to property from vibration; and to the noise and annoyance caused to inhabitants, it be referred to the Public Control Committee to consider and report as to the powers of the Council for restricting and regulating the use of such locomotives in the public streets, and to what extent those powers have been exercised."

Mr. Torrance seconded the motion, which was carried.

Public Health.—After some discussion it was agreed, on the motion of Mr. Macdonald, that, in view of the different standards of thoroughness adopted by the various Medical Officers of Health in London in their administration of the Public Health Act, the Public Control Committee consider the question of convening a conference of the Medical Officers of the Metropolitan Boroughs to consider the advisability of a more uniform administration.

The Council soon after adjourned.

Illustrations.

DESIGN FOR A ROYAL MEMORIAL CHAPEL.

THIS design by Mr. Andrew Hutton, of Dundee, was submitted in the Institute competition for the Tite Prize two or three years ago, and was noticed with commendation in our review of the design at the time.

Some points in the detail may be rather crudely treated, but as a whole it shows power both in architectural conception and in the drawing.

NEW BLUE COAT HOSPITAL FOR LIVERPOOL.

THE drawings here reproduced are those of the new Blue Coat Hospital, which is in course of construction between Prince Alfred-road and Church-road, Wavertree, near Liverpool. The main entrance will be from Church-road, and from here the external aspect will be that of a range of buildings one story in height, with a central tower over the entrance, and gymnasium and swimming bath on the right hand (neither of these three features being included in the present contract, though essential to complete the design of the front), and a memorial chapel on the left, of which we reproduce two views, exhibited at this year's Royal Academy. The chapel is octagonal on plan, surmounted by a flat dome constructed in concrete.

As will be seen by reference to the plans, the main entrance gives direct access to the central hall, with the boardroom on the left hand and the headmaster's apartments on the right. The central hall is 75 ft. by 46 ft., with a stage and retiring rooms at the far end. Beneath it is the dining hall, of the same dimensions and 18 ft. 6 in. high, for although the entrance from Prince Alfred-road is on the ground level, the buildings, owing to the declivity of the site, admit of a lower ground floor on the west side. The main front of the building, which is towards Prince Alfred-road and overlooking the Wavertree playground, is three stories high, and contains on the lower ground floor the boys' and girls' classrooms and staff library, and a main corridor leading to the boys' wing on the north and the girls' on the south. The accommodation provides for 250 boys and 150 girls.

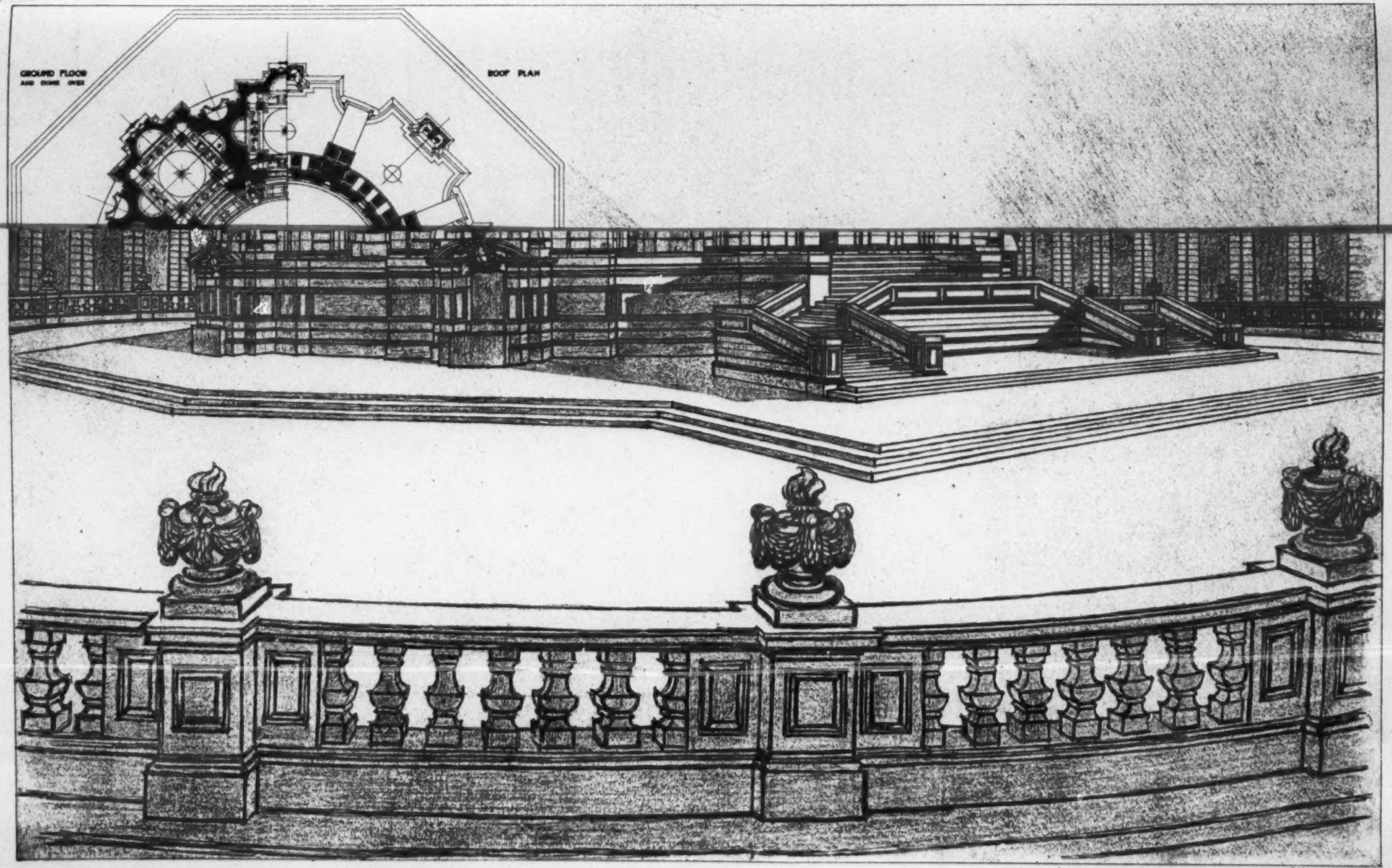
The materials used for the main building are 2½ in. Red Ruabon wire-cut bricks, with Grinshill stone dressings and green slate roof; all the external cupolas will be in oak, and the corridors and class rooms have dados of salt-glazed brick and terrazzo and wood-block floors.

The chapel inside will be faced up to the cornice level with Bath stone and treated above with plaster; all furniture, pulpit, doors, etc., will be in oak. The foundation stone was laid last August by the Earl of Derby.

Messrs. Morrison and Sons, of Wavertree, are the builders for both contracts, and the architects are Messrs. Briggs and Wolstenholme, F. B. Hobbs, and Arnold Thornely.

ARCHITECTURAL SOCIETIES.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The sixteenth annual report of the Council shows that during the year the net membership has decreased by two—four associates and two students have resigned on leaving Sheffield, one new associate, two new students, and one lay member elected, and two students transferred to the associateship, thus leaving the total membership 109, as compared with 111 last year, but the same number as in 1900. As in 1901, the Council again offered prizes amounting to 5*l.* 5s. for the best set of measured drawings of buildings within the Society's province, but regret to say there was no response, and it was decided to apply the amount to the library fund. The same fate has been shared by the President's prize for



"INK-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

STUDY FOR A ROYAL MEMORIAL CHAPEL.—Designed and Drawn by Mr. Andrew Hutton.

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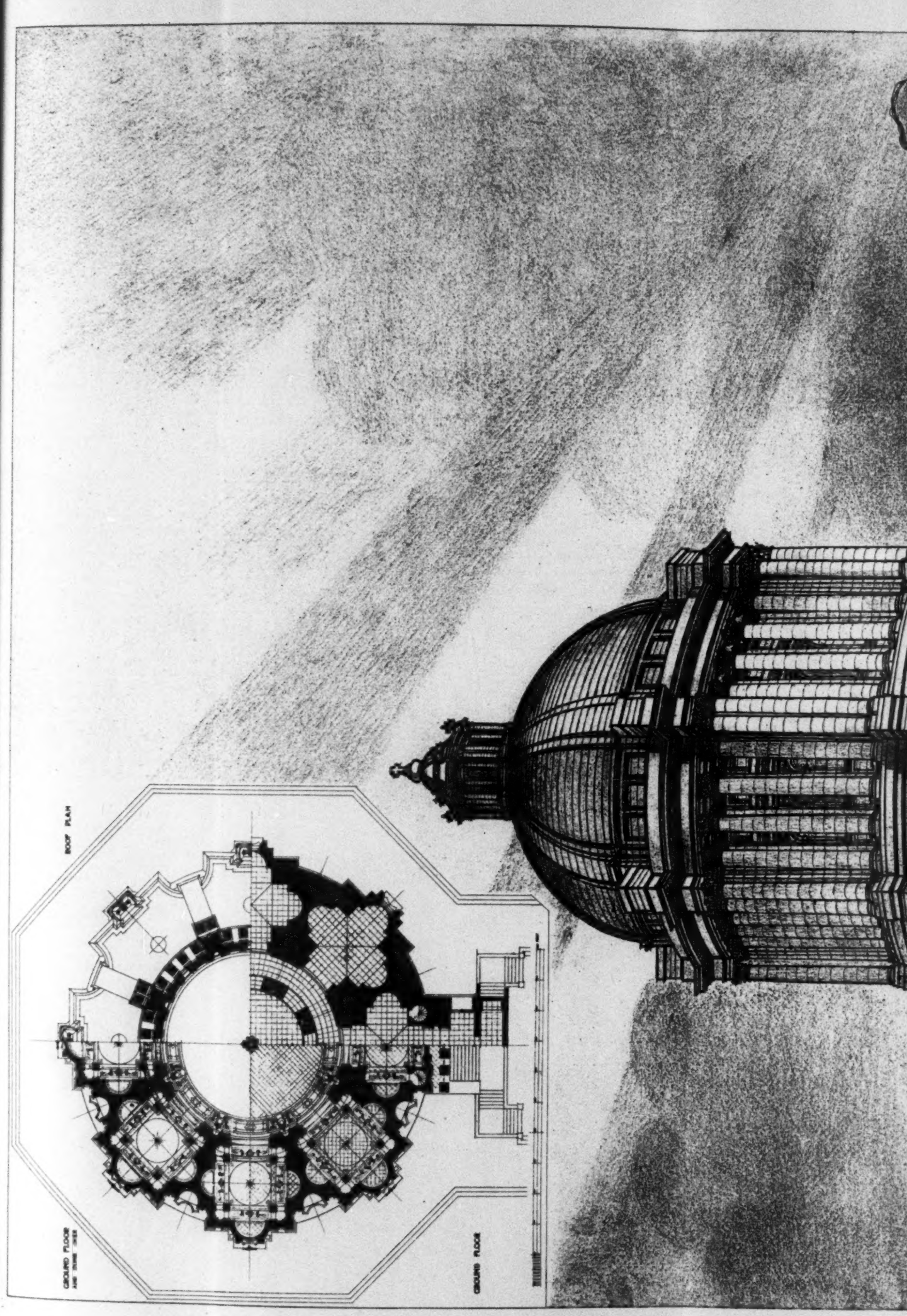

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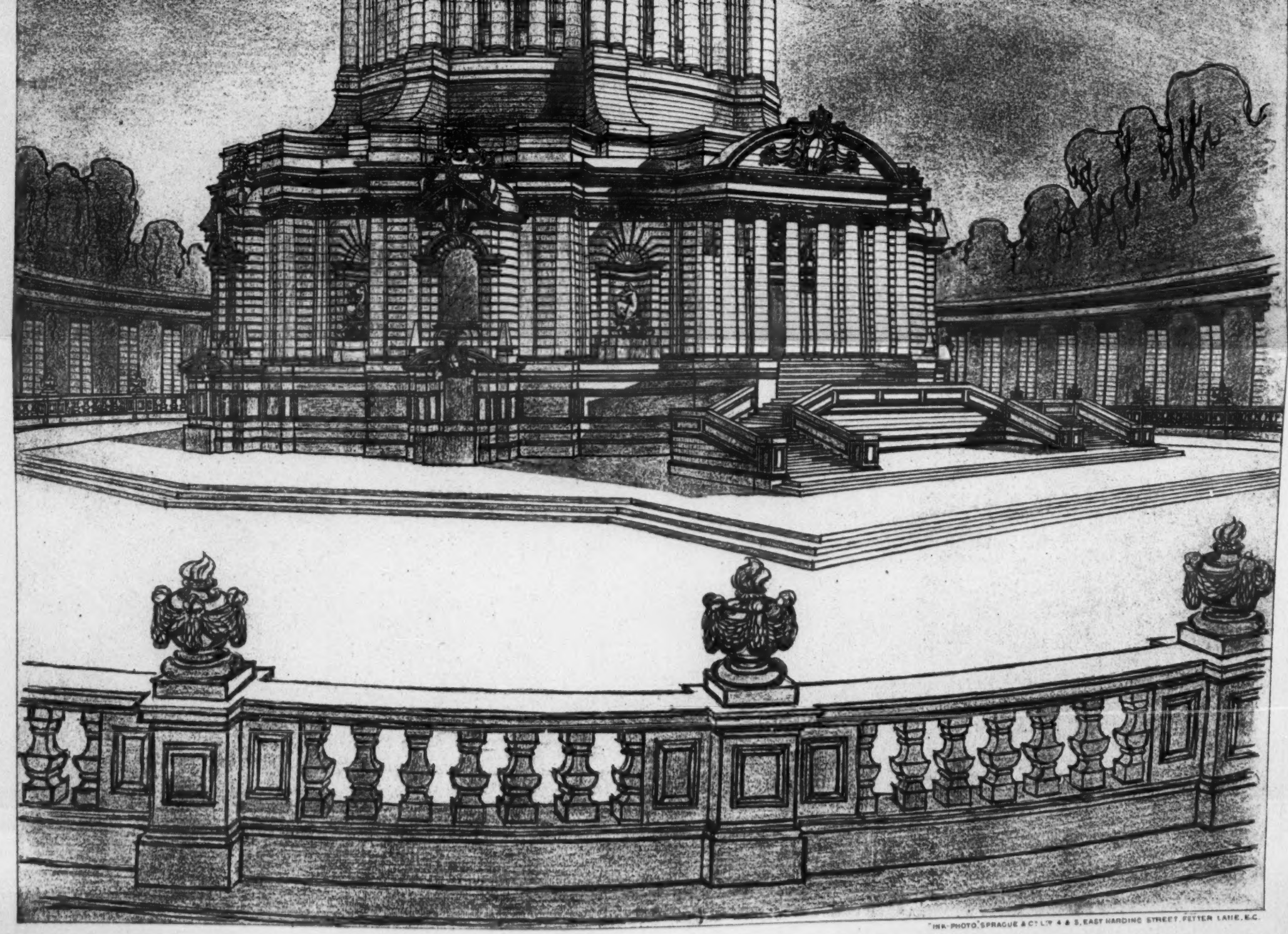
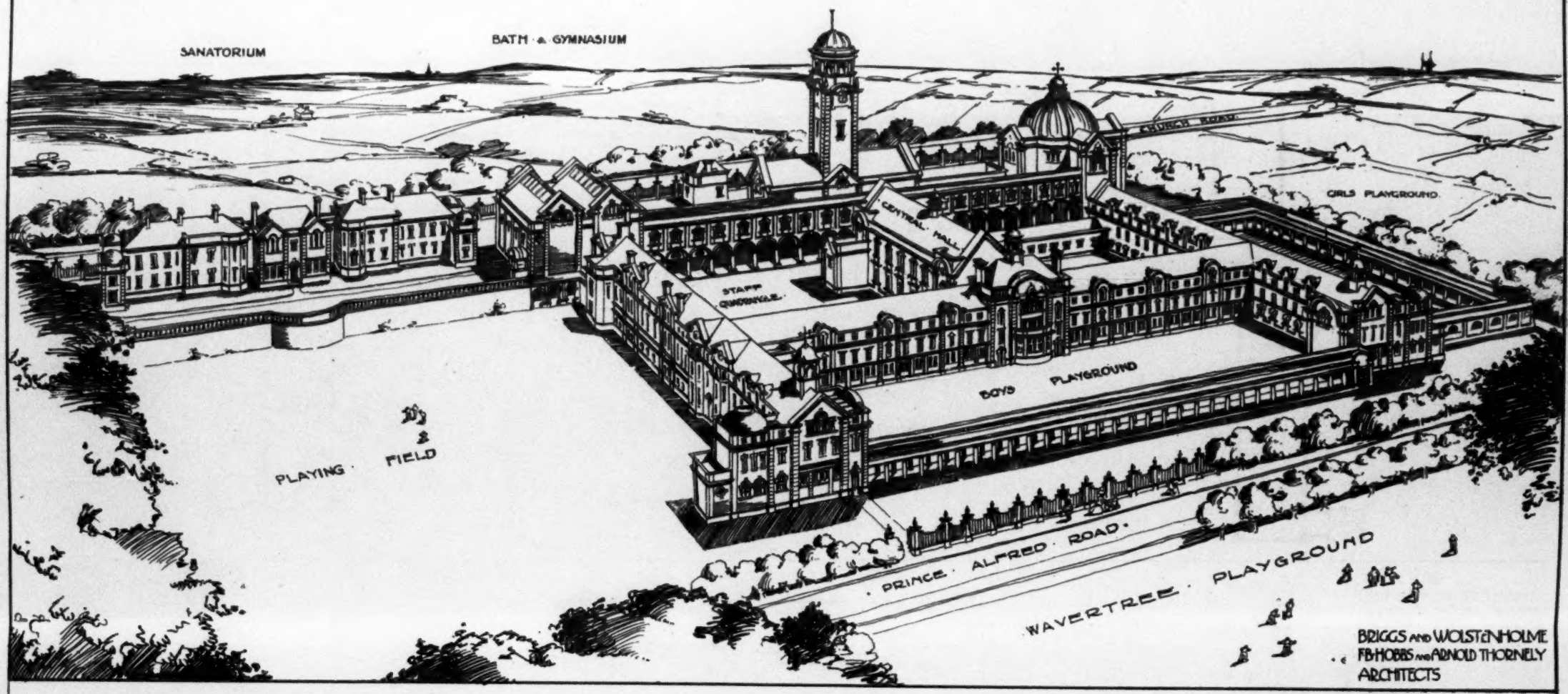


STUDY FOR A ROYAL MEMORIAL CHAPEL.—Designed and Drawn by Mr. Andrew Hutton.

PROPOSED BLUE COAT HOSPITAL LIVERPOOL



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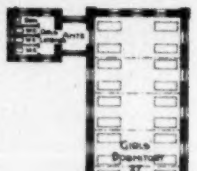
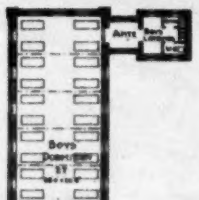


UPPER GROUND FLOOR PLAN



UPPER GROUND FLOOR PLAN

SCALE OF FEET

BRIGGS AND WOLSTENHOLME
P.D. HOBBS AND ARNOLD THORNELY
MARCH 1903 — ARCHITECTS

CHAPEL

SIGNS WAY DOWN

APPLICANTS AND GIRLS ENTRANCE

BOARD ROOM

HALL

OFFICE

GYMNASIUM

SWIMMING BATH

LODGE

LODGE

CHURCH ROAD

PHOTO LITHO. SPRAGUE & Co LTD 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

BLUE · COAT · HOSPITAL · LIVERPOOL
INTERIOR · OF · MEMORIAL · CHAPEL

BRIGGS & WOLSTENHOLME
HOBBS & THORNELY
ARCHITECTS
LIVERPOOL

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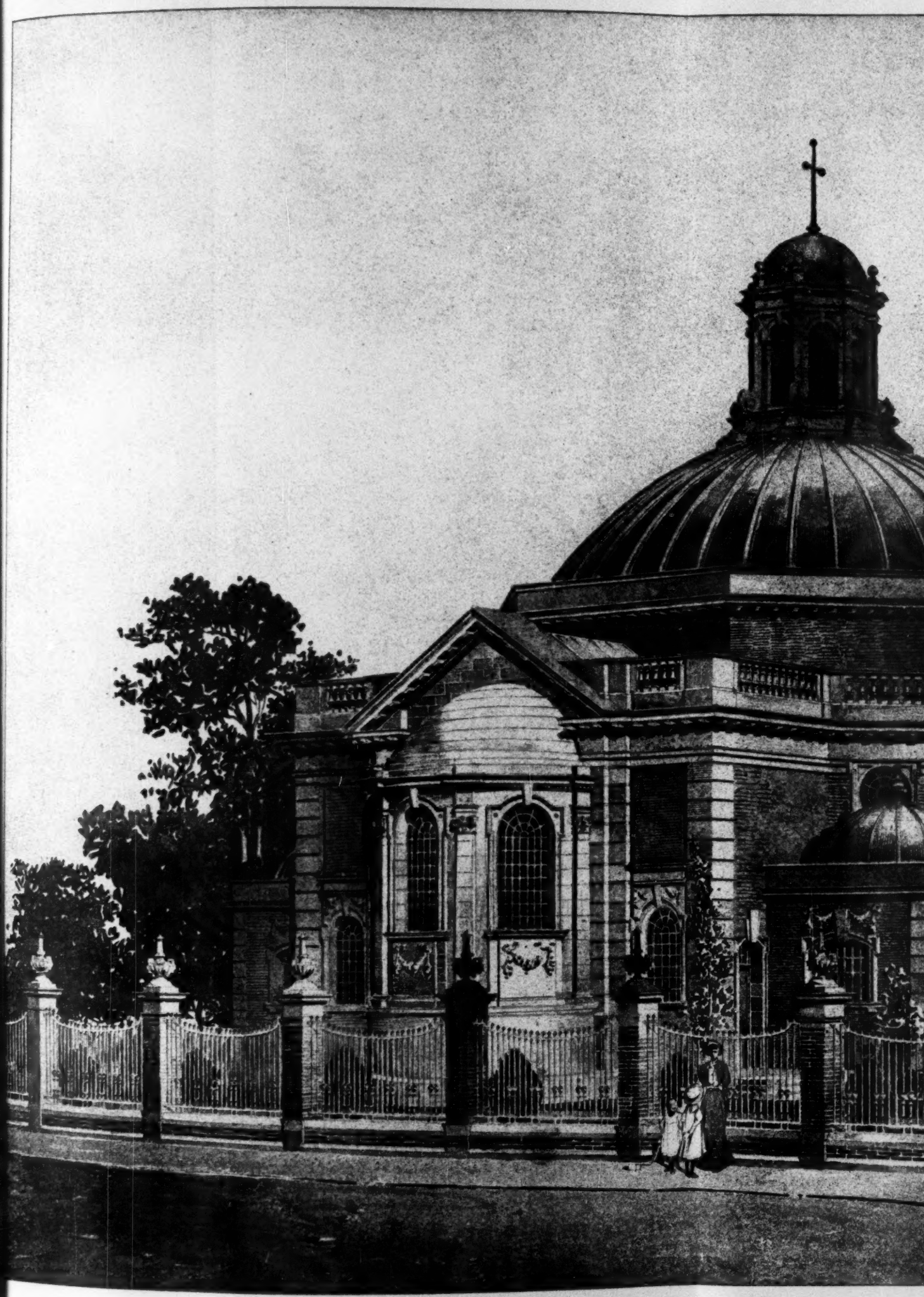

BLUE COAT HOSPITAL, LIVERPOOL: EXTE

MESSRS. BRIGGS & WOLSTENHOLM
F. B. HOBBS & ARNOLD THORNEL

"HELIO-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

OL: EXTERIOR OF MEMORIAL CHAPEL.

VOLSTENHOLME, } ARCHITECTS.
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an original survey, and he has also given one half of the prize to the library fund. The Council are again prepared to offer similar prizes, and the President is prepared to add the remaining half of the prize he offered last year to these; the Council therefore hope that the students and younger associates will take advantage of the same, and make the competition a success. With regard to the Draft Building By-laws upon which the Council reported last year at some length, an amended draft was sent by the Town Clerk and considered by the Council, and was referred to and again considered by a committee, and a further letter was sent to the Town Clerk on the matter in June last. Since then a draft copy has, it is understood, been sent to the Local Government Board, and been returned with many alterations. Up to the present time no further communication has been received from the Town Clerk. A circular has been received from the Competition Reform Society, having for its object the reform of the methods now too often seen in the competitions given out by Public Authorities. The Council, however, considered that the Royal Institute of British Architects was the proper body to deal with this difficult question, and decided, therefore, to take no part with this new Society in the matter. The Committee has been engaged in the revision of the library catalogue, and also in the preparation of a list of standard books of reference, the intention being to prepare for a systematic purchase of books in the future. Suggestions from members which will assist in the preparation of this list will be welcomed. In furtherance of this scheme, it has been decided to establish a fund to be devoted entirely to the improvement of the library. The Committee has been requested by the Council to consider and report on the educational facilities offered to architectural and surveying students, with a view to supplementing their deficiencies where possible, and also suggesting to students a scheme of general study. The matter is an important one to the profession generally, and the Committee will be glad to receive from students and other members statements of difficulties met with by them in the pursuit of their studies. The Committee has also dealt with the subject of classes for the younger members of the Society. A preliminary meeting was held, at which there was an attendance of twenty-one. Various proposals were discussed, and it was resolved to commence with a class for design, and also to organise sketching excursions during the summer. A meeting of this class was held on March 10, when eleven designs were submitted. The designs were reviewed in detail by Messrs. W. J. Hale and J. R. Wigfull, who were of the opinion that the standard was very satisfactory. With regard to public matters affecting the interests of the profession, the Council have considered the Sheffield Corporation Bill of 1903, and find that as drafted there is nothing to which exception can be taken. The attention of the members is, however, called to an important legal decision affecting members and their clients, which is as follows:—The case was the Corporation of Harrogate against Dickinson, and the decision of Mr. Justice Wright on February 20 last turned upon the construction of a clause in the Harrogate Corporation Act, 1893, Section 27. "The deposit with the Corporation of any plan of any street or building shall be null and void if the execution of the work specified in such plan be not commenced within the following periods. . . . as to plans deposited after the passing of this Act within three years of date of such deposit. . . . and at the expiration of these respective periods fresh notices and deposits shall, unless the Corporation otherwise determine, be requisite." This is almost identical with Section 73 of the Sheffield Corporation Act, 1890, and hitherto it has been the practice of the Sheffield Corporation to allow of the erection of part of the buildings shown on any plan as being a commencement within the meaning of this section, so that if over three years had expired, it would be possible to complete the remaining buildings shown on the plan without the re-deposit of future plans. The result of this decision is most important to the architects and building public of the city, as, acting upon it, the Sheffield Corporation may require fresh sets of plans to be deposited in cases where only a portion has been commenced.

SURVEYORS' INSTITUTION.

We have received from the Secretary of the Surveyors' Institution a copy of the Amended By-laws.

By-law 4, relating to Professional Associates, contains the following new paragraph, which confers some new privileges on the Associate Members. It runs as follows:—

"Professional Associates shall not be eligible for the office of President or Vice-President, but shall be eligible for election on the Council, and for election or appointment to other offices of the Institution, and shall be entitled to all its rights and privileges."

The following By-law 5A is new:—

"5A. The designation of Members, by distinguishing initials or words, shall be as follows:—

Every Fellow shall be entitled to use after his name the initials F.S.I (*i.e.*, Fellow of The Surveyors' Institution) or, at his option, the words "Chartered Surveyor."

Every Professional Associate shall be entitled to use after his name the initials P.A.S.I. (*i.e.*, Professional Associate of The Surveyors' Institution) or, at his option, the words "Professional Associate Chartered Accountant."

By-law 18, giving power to the Council to suspend a member, has a new paragraph at the end providing that in such case there must be twelve members of the Council present and voting.

A new By-law, 19A, in reference to By-law 19 which gives power to expel any member who has "violated one of the fundamental rules of the Institution," defines the fundamental rules as follows:—

"19A. The Rules next hereinafter set forth shall be deemed fundamental rules of the Institution (that is to say):—

(1) A Member shall not engage in or be connected with any occupation which in the opinion of the Council is inconsistent with the profession of a Surveyor.

(2) A Member shall not directly or indirectly allow or agree to allow of participation by any Solicitor or his representative, or by any accountant or liquidator, or by any of their clerks, in his charges for professional work.

(3) A Member shall not accept or give any illicit or secret trade or other discounts, commission, or allowance, in connexion with any works the execution of which he may be engaged to superintend, or with any other professional business which may be entrusted to him, or any goods he may order on behalf of clients."

APPLICATIONS UNDER THE 1894 BUILDING ACT.

The London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

Lewisham.†—Permission to retain a building on the west side of Lewisham-road, to the northward of No. 170 (Messrs. Martineau and Reid for Messrs. Whitbread and Co., Ltd.).—Consent.

Westminster.—That the application of Mr. F. G. Richardson for an extension of the period within which the erection of shops in front of Nos. 80 and 84, Grosvenor-mansions, Victoria-street, Westminster, was required to be completed, and the railings at present existing in front of No. 84 removed, be granted.—Agreed.

Bermondsey.—A one-story addition upon part of the forecourts of Nos. 88 and 89, Grange-road, Bermondsey (Mr. H. G. Bailey for Messrs. Heinke and Co.).—Consent.

Wandsworth.†—A wood, brick, and tile porch to "Narford," Lyford-road, Wandsworth, to abut upon Herondale-avenue (Messrs. Holloway Brothers for Mr. C. J. Byworth).—Consent.

Chelsea.—A school building at the Ashburnham Schools, on the north-west side of Lots-road, Chelsea, to abut upon Tetcott-road (Mr. T. J. Bailey for the School Board for London).—Consent.

Clapham.—A bakehouse building in the yard at the rear of No. 94, Northcote-road, Battersea, to abut upon Salcott-road (Mr. A. S. Gover for the House Property and Investment Company, Ltd.).—Consent.

Fulham.—Twelve buildings on the north-east side of Stephendale-road, Fulham (Mr. I. Wilson).—Consent.

Kensington, North.—A one-story addition to the shop at No. 14, Elgin-crescent, Notting-hill, to abut upon Kensington Park-road (Mr. E. W. Fagg for Mr. H. Geissler).—Consent.

Kensington, North.—Two four-story bay windows in front of No. 46, Chepstow-villas, Kensington (Mr. T. P. Figgis for Mr. W. H. Clark).—Consent.

Marylebone, East.—A building to be used as a keepers' mess-room and dormitories in the garden of the Zoological Society, on the south side of the outer circle, Regent's Park, St. Marylebone (Messrs. Hudson and Hunt for the Society).—Consent.

Strand.†—Permission to retain advertisement frames at No. 1, Green-street, Leicester-square (Mr. W. M. Brutton for Mr. J. Buchan).—Consent.

Dulwich.—A one-story shop upon part of the forecourt of No. 26, Peckham-rye, Camberwell (M. W. L. Dowton for Mr. W. T. Champion).—Consent.

Hackney, North.—A covered way at the rear of No. 88, Mountgrove-road, Stoke Newington, to abut upon Finsbury Park-road (Mr. E. Bates for Messrs. Welford and Co.).—Consent.

Islington, West.—Two two-story dwelling-houses upon the garden at the rear of No. 330, Liverpool-road, Islington, to abut upon Orleston-road (Mr. A. M. Torrance for Mr. A. J. Bellew).—Consent.

Paddington, South.—An iron and glass porch at the entrance to No. 23, Hyde Park-gardens, Bayswater-road, Paddington (Mr. F. Wheeler for Mr. C. D. Rudd).—Consent.

St. George, Hanover-square.—A building on the site of No. 15, Hanover-square, St. George, Hanover-square (Mr. P. Hoffmann for Mr. H. O'Brien).—Consent.

St. George, Hanover-square.—An open stone portico at the entrance to No. 157, New Bond-street, St. George, Hanover-square (Mr. C. H. B. Quennell for Messrs. F. and R. Speaight).—Consent.

St. George, Hanover-square.—The enclosing of a portico at the entrance to No. 19, Upper Brook-street, Mayfair (Messrs. W. H. Romaine-Walker and Besant for Mr. A. W. Davis).—Consent.

Wandsworth.—Dwelling-houses with bay windows, on the north side of Fawe Park-road, Wandsworth, between Disraeli-gardens and Brandlehowe-road (Mr. E. Cannell for Messrs. E. H. Wallis and Co.).—Consent.

Wandsworth.—A building on the south side of New Park-road, Brixton, eastward of Streatham-place (Mr. T. J. Bailey for the School Board for London).—Consent.

Hammersmith.†—Buildings at the rear of Nos. 176, 178, 180, and 182, Goldhawk-road, Hammersmith, to abut on Cathnor-road and Conningham-road (Col. E. Clarke).—Refused.

Holborn.†—An iron and glass shelter in front of the main entrance to the Hotel Russell, Russell-square, Holborn (Messrs. J. W. Singer and Sons, Ltd., for the Fredericks Hotel Company).—Refused.

Kennington.—An iron and glass conservatory on the one-story addition in front of the Horns Hotel, No. 214, Kennington Park-road, Kennington (Messrs. F. J. Eedle and Meyers for Mr. R. J. Brinkley).—Refused.

Kensington, North.—An addition to No. 133, Westbourne-grove, Kensington, to abut upon Pembridge-villas (Mr. F. W. Hunt for the London and Westminster Bank, Ltd.).—Refused.

Kensington, South.†—Buildings on a site on the south side of Kensington-road, Kensington, to abut also upon Palace-gate (Messrs. W. N. Millard and Pryce for the Royal Exchange Assurance Company).—Refused.

Norwood.—One-story shops in front of Nos. 23, 25, 27, and 29, Hinton-road, Norwood (Messrs. Cole and Wood for Mr. W. Crocker).—Refused.

Paddington, North.†—An addition to No. 1 Blomfield-crescent, Paddington, to abut upon Harrow-road (Messrs. J. G. and H. G. Needham for Mr. M. L. Capua).—Refused.

Clapham.—The retention of a wood and glass addition at the side of No. 32, Bolingbroke-road, Clapham, abutting upon Gorst-road (Mr. A. Dent for Mrs. F. Dent).—Refused.

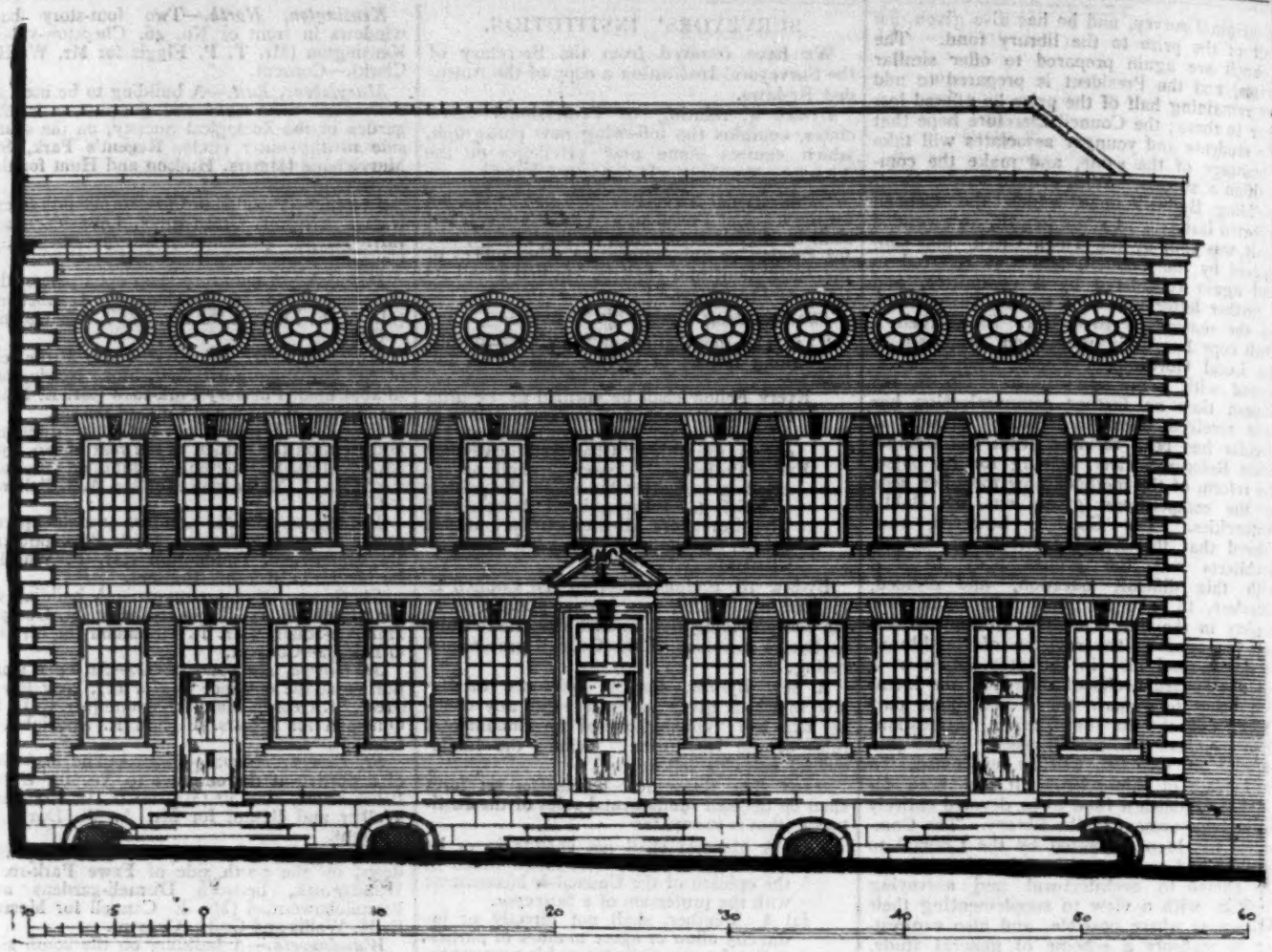
Islington, South.—One-story shops upon part of the forecourts of Nos. 237 and 238, Upper-street, Islington (Messrs. Drivers, Jonas, and Co. for Mrs. C. E. Merson, Mr. R. J. Hayward, and others).—Refused.

Lewisham.†—Wooden overhanging eaves and barge boards and projecting wood and slate pents to nine houses on the south-west side of Ewhurst-street, Lewisham, between Bexhill-road and Salehurst-road (Mr. T. W. H. Standen).—Refused.

Paddington, South.†—An open portico at the entrance to No. 9, Stanhope-place, Hyde Park, Paddington (Mr. G. E. Streatfeild for Mr. L. W. Evans).—Refused.

St. George, Hanover-square.—An iron and glass hood over the entrance to No. 1A, Dover-street, Piccadilly (Messrs. G. Trollope and Sons for the Grosvenor Club Syndicate, Ltd.).—Refused.

Wandsworth.—Two houses with shops upon a site on the south side of Brookwood-road, Wandsworth, abutting upon Clonmore-street



The Old Blue Coat Schools, Liverpool. Measured and drawn by Mr. Matthew Honan.

(Mr. J. M. Jones for the Land Development Syndicate).—Refused.

Wandsworth.—A dwelling-house on the north side of Fawe Park-road, Wandsworth, to abut upon the west side of Brandlehowe-road (Mr. E. Cannell for Messrs. E. H. Wallis and Co.).—Refused.

Width of Way.

Marylebone, West.—Working-class buildings upon the site of No. 9, Paradise-place, St. Marylebone (Messrs. T. H. and A. M. Watson for the Portland Industrial Dwellings Company, Ltd.).—Consent.

Hackney, North.—An addition at the rear of the Public Library, Church-street, Stoke Newington, to abut upon Edwards-lane (Mr. S. G. Goss for the Metropolitan Borough of Stoke Newington).—Consent.

Hackney, Central.—Retention of two buildings at the rear of the Hackney Polytechnic Institute, Dalston-lane, Hackney, with the forecourt boundary at less than the prescribed distance from the centre of the roadway of Institute-place (Mr. A. W. Cooksey for the Governors of the Institute).—Consent.

Woolwich.—A one-story building on the north side of a public footpath leading from Maxey-road to Lee-street, Woolwich (Messrs. Church, Quick, and Whincop for Mr. J. Murray).—Consent.

Hackney, South.—A one-story office building on the north-west side of Wallis-road, Hackney-wick (Mr. G. H. Lovegrove for Messrs. Orrock and Co., Ltd.).—Refused.

St. Pancras, North.—Permission to retain a forecourt fence on the eastern and southern sides of Greenwood-place, Highgate-road, St. Pancras (Mr. J. P. Crosby for Messrs. Maple and Co., Ltd.).—Refused.

Width of Way, Lines of Frontage, and Projections.

Norwood.—A block of flats on the north side of Ardville-road, Brixton, eastward of the Brixton Theatre (Mr. E. C. Homer).—Consent.

St. Pancras, North.—An external iron staircase at the Imperial Laundry, Ingestre-road, St. Pancras (Mr. C. J. Shaw for the London United Laundries, Ltd.).—Consent.

Woolwich.†—Two shops and dwelling-houses on land adjoining No. 27, Herbert-road, Plumstead (Messrs. A. H. Edward and Co.).—Consent.

Chelsea.—The re-erection and enlargement of the porch at the entrance to No. 125, Sloane-street, Chelsea, and the retention of a half-basement addition to such building, each abutting upon Cadogan-terrace at less than the prescribed distance from the centre of the roadway of that street (Mr. R. G. Hammond for Mr. J. Garlick).—Consent.

St. George, Hanover-square.—The retention of a glass and iron hood over the entrance to No. 1, Bolton-street, Piccadilly (Messrs. J. Shoolbred and Co. for Mr. H. A. Attenborough).—Consent.

Brixton.†—A building with a one-story addition in front, on the site of Nos. 242 to 258 (even numbers only) inclusive, Ferndale-road, Brixton, to abut also upon Stockwell-avenue (Mr. J. W. Chapman for the Bon Marché, Ltd.).—Refused.

Kensington, North.—A one-story building upon a site abutting upon Blechynden-street and Blechynden-mews, Lancaster-road, Kensington, to an advanced line in Blechynden-street (Mr. W. Daniell for Messrs. Lane Brothers, Ltd.).—Refused.

Marylebone, West.—A one-story addition and bay-window in front of No. 11, Gloucester-mews, West, St. Marylebone (Messrs. C. Brown and Sons for Sir J. Walton).—Refused.

Space at Rear.

Marylebone, East.—Three blocks of flats, with two warehouses in the rear, on the site of Nos. 31 to 36, Foley-street, St. Marylebone (Mr. W. H. Woodroffe for the Trustees of the late R. Ankerson).—Consent.

Wandsworth.—Three houses on the north side of Fawe Park-road, Wandsworth, with an irregular open space at the rear (Mr. E. Cannell for Messrs. E. H. Wallis and Co.).—Consent.

Whitechapel.—Alteration and addition to a dwelling-house on the west side of Brick-lane, Whitechapel (Messrs. Truman, Hanbury, Buxton, and Co., Ltd.).—Consent.

Width of Way and Space at Rear.

Strand.†—A building upon the site of No. 14, Duke-street, St. James's, Westminster, abutting at the rear upon Mason's-yard (Mr. L. W. Green for Mr. C. Staniforth).—Crescent.

Width of Way and Deviation from Certified Plan.

Marylebone, East.—A building on the site of Nos. 120 and 122, Marylebone-lane, St. Marylebone, abutting also upon Cross-Keys-mews (Mr. W. Woodward for Mr. S. H. Griffiths, trading as Messrs. Blyth and Co.).—Consent.

Means of Escape at the Top of High Buildings.

Strand.—Means of escape in case of fire on the third, fourth, fifth, sixth, seventh, and eighth stories of the Savoy Hotel Extension, Strand (Mr. T. E. Collcutt).—Consent.

Buildings for the Supply of Electricity.

Norwood.—Three water cooling towers in one block, and a motor-house at the generating-station, Bengeworth-road, Loughborough-junction (Wheeler Condenser and Engineering Company for the South London Electric Supply Corporation).—Consent.

The recommendations marked † are contrary to the views of the local authorities.

THE OLD BLUE COAT SCHOOL, LIVERPOOL.

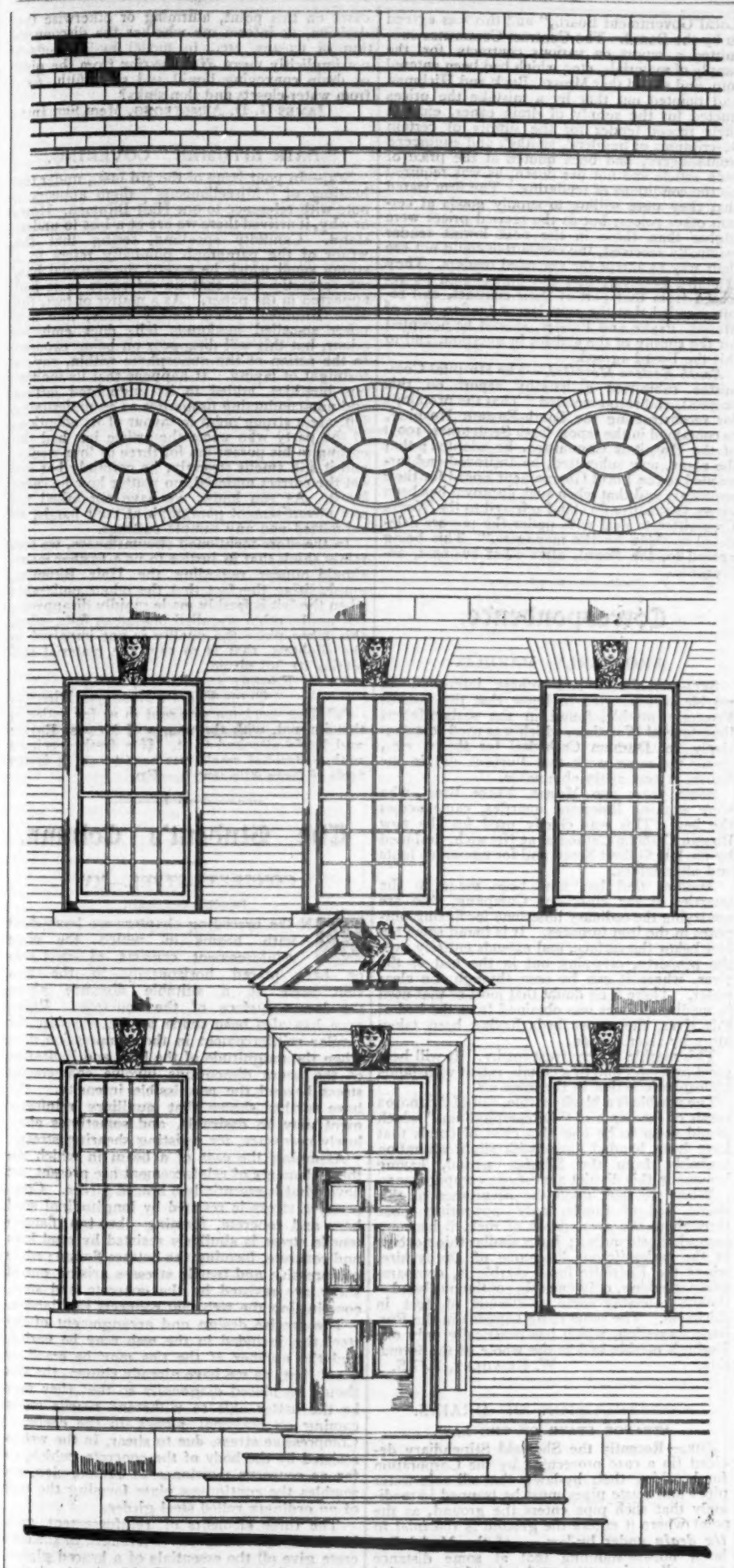
As we are publishing in this issue the designs for the new Blue Coat School, near Liverpool, it may be of interest to give these illustrations of the old Georgian building in Liverpool (behind the churchyard of the present pro-cathedral), which will shortly be pulled down.

We are indebted for the illustrations to Mr. Matthew Honan, an architect residing in Liverpool.

THE DEVELOPMENT OF ARCHITECTURE.

Professor Beresford Pite delivered the first of a series of lectures on architecture, at the Municipal School of Art, Leicester, on the 25th ult. Mr. Pick presided.

According to the *Leicester Post*, Professor Pite said in this series of lectures he proposed to endeavour to induce the students to think for themselves, apart from the teaching of the architectural picture-books. Architecture did not lie in a study of form any more than good poetry lay in a study of words. Every building embodied the thought of those who built it; the arrangement of a building denoted its purpose. It was obvious, therefore, that the forms those arrangements took denoted the intellectual condition of the persons who gave those forms being. He had the advantage, in working at South Kensington, that his students knew nothing about architecture. They came with open minds, and they did not sit down and say



Old Blue Coat Schools, Liverpool: Detail of Centre of Elevation.

at once that there was only one form that they liked; that they hated everything that was red and liked everything that was green. He was delivered from all that at South Kensington, and he hoped with regard to this work that the students would begin without prejudice, and think for themselves. Let them dismiss from their minds all prejudices as to style, and see if they could not learn something from each particular style. Their programme was to consider the whole subject of architectural development, with a view to understanding how to develop our architecture. He was going, therefore, to very briefly review the development of style.

The progress of architectural development was the progress of the knowledge of the building art. Architecture was the art of building reasonably, sensibly, and beautifully. It was not that sort of application of art to the outside of a building which the man in the street thought was architecture. The progress of building art had been a simple process of evolution. With regard to Egyptian architecture, for instance, Professor Petrie held the theory that the well-known Egyptian style was a development from the rush and mud huts of the Upper Nile. It was a copying in fine material of the forms of the erections in commoner material. It, of course, augured a want of intellect, but the forms survived. The Grecian styles were more beautiful, but were the Greeks more intellectual? Not a bit. Vitruvius, who flourished in the reign of the Roman Emperor Augustus, wrote a treatise on the laws of architecture, and said the proportions of the Doric style were based upon manly proportions. A man's height was six times the length of his foot, etc., and the Doric column was six times its diameter. The Ionic column was seven times its diameter, because it was based upon feminine proportions, and so on. Greek architecture was a translation into fine material of the forms which arose from the employment of wood in building. The architectural development of the Greeks had left its impress on the whole world. Then they came to the Romans. They originated nothing. They were great builders and engineers, and they used Greek art to decorate their great works. They had an art repository in Greece. Then the Roman Empire fell to pieces, and they came to the Byzantine Empire. The barbaric forms of their architecture were a blend of what had gone before. At the close of the Roman Empire the whole of society was in the melting-pot, and when it came out there was little distinction between the architectural and the constructive man.

Then came the great Christian era, and the great buildings of the Middle Ages were ecclesiastical. The Roman Church practically replaced the Roman Empire, and exercised a world-wide influence for good in architectural education. Then came those great, domed buildings which were so impressive and beautiful. The question might here be asked whether architecture could get on without artists. In his opinion it could not. Imagination was as necessary in designing beautiful churches as in anything else. They could not get design out of limbo, and imagination must have material from which to work. Now they came to England. England, in the absence of means of communication, was cut off from Greece and Rome. Our only connexion was through the Church, and we saw, therefore, the establishment of Italian ideas through the influence of Italian bishops, priests, and through the pilgrims. Building energy developed largely in England after the time of Canute. Previously churches were built of wood, but afterwards stone was used, and craftsmen worked with common sense, and developed the few ideas that had been brought from Italy. Whatever views they held to-day as to proportion in design, they would find that they could not get away from certain proportions, and the proportions, too, that Vitruvius laid down. They would find that there was a certain mean that was satisfactory, and they could not get beyond it. Why it was so he could not say, but he urged on students that there certainly was a canon of proportion. If that was more generally recognised there would not be so many of the ghastly buildings which were the result of architects endeavouring to create their own proportions.

COURT OF COMMON COUNCIL.

THE usual Court of Common Council was held on Friday last week, at the Guildhall.

Mr. W. R. Horncastle said that he thought that members of the Court would be interested to hear that in the course of the demolition of Newgate some remains of the "Ballium"—the Roman external wall of defence which was built round the City in the fourth or fifth century—had been brought to light in a marvellous condition after 1,500 to 1,600 years, and had been uncovered to a depth of 20 ft. The excavations had also revealed, at the north end of the site, an archway, in a fine state of preservation. That was apparently a portion of a subterranean passage way what one time connected Newgate—built about the year 1100—and the gaol. Newgate itself was pulled down in the year 1767. No doubt members would like an opportunity of seeing the remains, and the special Sessions House Committee had arranged that they should not be disturbed until the following Thursday. Unfortunately the remains would have ultimately to be removed altogether.

On the motion of Mr. W. H. Williamson, it was agreed to hand over the bust of the late Cecil Rhodes to the custody of the City Lands Committee.

Mr. T. V. Bowater moved: "That the designs for the new Southwark Bridge be put out

to competition, with instructions that the designs be as ornamental as possible." He said that on the Continent the bridges were generally of an ornamental character, and London seemed to be the only place where they were not so.

Mr. Deputy Pryke objected that it would mean delay if a competition were decided on. They might not get the Bill through Parliament next session.

Mr. Carl Hentschel said that they should not hurry over the matter, but should endeavour to obtain as artistic a bridge as possible.

Mr. Deputy Wilkinson moved that the words after the word "competition" should be struck out, and this was seconded by Mr. Deputy Matthews.

The amendment was lost, however, and the original motion carried.

Some discussion took place with regard to the proposal to run tramways across Southwark Bridge, Mr. F. G. Day moving that it be referred to the Bridge-House Estates Committee to consider and report as to the desirability of allowing the L.C.C. to continue the tramlines on the south side of Southwark Bridge over the bridge. He said that the bridge was one used largely by the working classes, to whom the trams would be a great benefit.

The motion was seconded by Mr. James, but on being put was lost.

METROPOLITAN ASYLUMS BOARD.

An ordinary meeting of the Managers of the Metropolitan Asylum District was held on Saturday last, at the offices, Victoria Embankment. Letters were received from the Local Government Board relating to the following matters:—Sanctioning a proposal to enter into a contract with Messrs. Buchanan and Curwen for the wiring of the children's home, Tooting Bec Asylum, for electric lighting purposes, at a cost of 398*l.*, without advertising for sealed tenders; authorising the erection of additional buildings at Joyce Green Hospital at a cost not exceeding 8,680*l.*, and the borrowing of that amount, to be repaid within a period of thirty years; authorising the erection of cottages at the Brook and Grove Hospitals respectively, for the accommodation of the resident engineer, at a cost not exceeding 1,070*l.* for the two; and sanctioning certain minor building works at the Caterham Asylum and the Park Hospital.

Banstead-road School.—The Works Committee reported that they had instructed the Engineer to the Board to prepare schemes for the establishment of telephone and fire-alarm systems at this school, and had authorised the necessary works being carried out at a cost of 123*l.* 14s. 0d. The action of the committee was approved and confirmed.

Northern Hospital.—The same committee further reported on the proposed alterations and additions at the Northern Hospital. At a previous meeting of the Board the Committee were instructed to report upon a letter, dated August 15, from the Local Government Board, with reference to a proposal to spend a sum not exceeding 797*l.* (in addition to 1,300*l.* already authorised) in respect of the proposed work. The Local Government Board had inquired whether the managers had considered the question of reducing the cost of those works so as to bring it within the original estimate of 1,300*l.*, upon which sum the Board's order was based. The Works Committee submitted a copy of a report on the subject which had been prepared by the Northern Hospital Sub-Committee. That report stated that the sub-committee having carefully considered the matter, adhered to their opinion that the proposed additions, etc., were necessary, and went on to say, "With respect to the details of construction of the various buildings, after careful investigation in consultation with the assistant surveyor, we find that although slight modifications might be introduced, the consequent saving in cost would be very small, and the effect would be that the new buildings would not harmonise with the general character of the rest of the hospital." The Works Committee accordingly recommended "That a reply based upon the report which the Hospitals Committee received from the Northern Hospital sub-committee with regard to the cost of the proposed additions and alterations at the Northern Hospital be forwarded to the Local Government Board in reply to their letter of the 15th August last," and this was agreed to.

Darenth Asylum.—The Asylums Committee presented a report dealing, among other matters, with a report made by two Commissioners in Lunacy on Darenth Asylum, which report contained certain remarks with regard to the arrangements at the asylum for the escape of inmates in case of fire, and had been submitted to the Asylums Committee for their consideration and report. The Committee now submitted some extracts from reports which they had received from their Darenth sub-committee. The Asylums Committee recommended "That the action taken upon the report of the Lunacy Commissioners be approved, and reported to the Local Government Board," and this was agreed to by the Board. The Contract Committee submitted a report on various contracts for the supply of materials, etc., which had been entered into, and stated that Messrs. Buck and Hickman had pointed out that by a mistake the prices quoted for the supply of drain canes, etc., in their recent tender for the supply of certain descriptions of builders', smiths', and engineers' ironmongery, had been quoted at the price of each article and not per dozen, as was required by the conditions of tendering. The firm stated that they were willing to supply goods at certain other prices, but as the revised prices were higher than those in the next lowest tender originally received, the committee could not see their way to accept the amended tenders. They thought, however, that the firm should be released from that part of their contract, and recommended that the next lowest tender, that of Messrs. Pryke and Palmer, should be accepted for the supply of the articles in question, and to this the Board agreed.

South-Eastern Hospital.—The Hospital Committee submitted a lengthy report on this hospital, and recommended "That the proposals for reconstructing the South-Eastern Hospital, as contained in the report (24th September, 1903) of the Hospitals Committee, be adopted; that the plans, now submitted, be approved and forwarded to the Local Government Board for their approval; and that when such approval has been given, the matter do stand referred to the Works Committee to deal with under the powers delegated to them by the managers." This being agreed to, the Board, after other business, adjourned.

Correspondence.

FROSTERLY MARBLE.

Sir,—Architects and others interested in marble will be glad to know that the famous Frosterly marble, found in the carboniferous limestone of Weardale, which was used so extensively in Durham Cathedral for shafts, etc., doing the same work that Purbeck did in the South, is now again obtainable.

Some years ago Messrs. Pease Bros., who were working limestone quarries, came across the bed. This was chiefly used for the new Roman Catholic Cathedral at Norwich, designed by the late Gilbert Scott, and for numerous fonts and altar tables.

Another find has now been made in the quarries of the Harehope Company, who are quarrying the ordinary limestone for fluxing purposes in the iron furnaces. It is found some ten feet below the surface, and extends entirely over the property, cropping out in the bed of the river, where it can be seen through the clear water. There is no doubt that most of that used in mediæval times was obtained from the bed of this river, the upper beds having been taken away by river erosion.

This marble is very trustworthy. It will bear great pressure, and to a certain extent withstands atmospheric action in the open air.

The marble is a black marble, full of Actinozoa corals of the name of "Dibunophyllum," which would seem to be one of a class of corals that have been handed down with slight alteration probably from the Silurian period, having become in this district almost one compact mass.

When we look upon the occurrence of this single bed of fossils, only appearing once throughout the great depth of rock, it becomes somewhat astounding; but a similar thing occurs in the carboniferous limestone of Derbyshire, where the Encrinite fossil marble is, comparatively speaking, only one thin continuous band—though probably some thousands of feet in thickness. The same thing happens in the Purbeck formation, which has practically only one Purbeck marble bed in the whole of the formation.

W. Brindley, F.G.S.

CONSTRUCTION OF DRAINS.

STRANGE STATE OF THE LAW.

Sir,—Recently the Sheffield Stipendiary decided (in a case prosecuted by the Corporation for breaking their by-laws) that all rain-water pipes and waste pipes must be trapped immediately that such pipe enters the ground, as the point where it enters the ground is the *inlet to the drain* under by-law — of the Model By-laws, notwithstanding that at some distance away all such wastes and rain pipes emptied into a disconnecting gully next the drain from the water-closet, and further, that as the bottom of a rain-water is next the wall, there the gully must be.

This decision is against the modern method of collecting waste pipes and rain-water pipes to one central disconnecting gully, and if his decision be correct law—which decision I very much question—our sanitary laws are in a deplorable condition.

Can any of your readers refer me to any Court cases on this point, affirming or otherwise the decision, or inform me whether the disconnection of wastes, etc., in model by-laws—does not implicitly mean *disconnection* from the pipe or drain conveying liquid and solid filth, *i.e.*, from water-closets and slop sinks?

James G. D. Armstrong, Mem.San.Inst.

"HAIR BITUMEN" COVERING.

Sir,—In your issue of the 3rd inst., under the heading of "Miscellaneous" there appears a note with reference to our Hair Bitumen. How, or why, it arrived there we are at a loss to understand. Candidly speaking, seeing that the writer of the paragraph pointedly refers to a strong smell which he asserts the material has, we earnestly wish that no reference to it had appeared in the paper. As a matter of fact, the Hair Bitumen, when freshly made, like any other so-called inodorous felt, does emit an odour, but this will disappear on being exposed to the action of the atmosphere within, say, a fortnight of laying. It happens that its inodorous bualities, added to its undoubted lasting and non-conducting properties as an underlining felt, are a strong point in favour of its adoption. If the party who wrote the article has had the cutting in his possession for three or four weeks, and it still smells strongly, he certainly has not got the correct material, no matter how he came by it. As you know, we have not asked for any advertisement paragraph at your hands, or submitted you any sample cuttings.

In the afore-mentioned circumstances, we certainly think that in justice to us a further mem. should appear regarding the Hair Bitumen, emphasising the fact that the odour noticeable when the felt is freshly made rapidly disappears, but unlike other so-called inodorous felts, when this takes place the quality is not impaired in the slightest, that is to say, the material still retains its full virtue.

Engert and Rolfe, Ltd.,
Cyrus Engert, Managing Director.

*** The specimen was sent to us for notice in this journal, with the names of Messrs. Engert and Rolfe attached to it. If a fresh specimen with a decided smell was sent to us, it is the fault of those who sent it.—Ed.

The Student's Column.

CONCRETE-STEEL.—XV.

BRACED GIRDERS.

In the preceding chapters we have dealt with beams in which the main reinforcement consists of steel rods or bars placed horizontally in the tension area at a suitable distance above the lower surface of the concrete. Reference has also been made to the necessity for similar reinforcement in the compression area when the magnitude of the load and limitation of the beam dimensions involve compressive stress beyond the permissible intensity. We have further shown that auxiliary reinforcement may be desirable, and sometimes absolutely necessary, for resisting shearing stress.

Assuming the case of a beam in which the three elements of reinforcement are present, we have what is essentially a braced girder. Compressive stress is resisted by longitudinal steel bars and concrete, forming the top flange; tensile stress is similarly resisted by steel bars and concrete, forming the bottom flange; while compressive and tensile stresses arising out of shear are resisted by the concrete and steel, constituting the web that connects the flanges.

The precise design and arrangement of the steel ties included in the web may be varied, and the number of the ties may be small or great, but, as we have already shown, the ties should be placed diagonally so that they may be the better able to withstand tensile stress coming on diagonal planes in the concrete. Compressive stress, due to shear, in the web is resisted by the body of the concrete, which, so far as concerns resistance to compression, resembles the continuous plate forming the web of an ordinary rolled steel girder.

The three elements of reinforcement combined with the compressive strength of the concrete give all the essentials of a braced girder, and therefore suggest variations in the design of concrete-steel beams. We will take two types of construction for the purpose of illustrating the possibilities open to the designer who has made himself familiar with the essential principles governing the application of concrete-steel to structures.

Let us first assume a solid rectangular beam to be the most convenient form for adoption in a particular situation, and that no reinforcement is necessary other than horizontal bars in

the tension area, and diagonal reinforcement in the connecting area, or, as we may briefly term it, the web of the beam.

When discussing the general theory of concrete-steel we showed that, in order to develop to the utmost extent the distinctive qualities of the new material, it is desirable to subdivide the reinforcement as far as may be practically possible, with the object of bringing the whole area of concrete within the sphere of influence of the steel. When this is done we have no longer "concrete and steel," but the remarkable combination "concrete-steel." Not only the longitudinal reinforcement, but the diagonal reinforcement also, should be finely sub-divided. The former may be taken to consist of thin rods disposed about the axis of tension in the lower part of the beam, to resist the effects of bending movement in an adequate manner. The latter must satisfactorily protect every part of the concrete from tensile stress due to shear. If, as generally happens in building construction, the load be uniformly distributed, the effects of shearing force will be relatively great at the ends of the beam, gradually diminishing to zero at the centre. But, with the exception of an infinitesimal point at the centre, no part of the beam can possibly be free from shearing stress. Consequently, the most efficient form of reinforcement for resisting tension on diagonal planes must be one in which the planes of reinforcement are equal in number with the planes subject to tension. As the number of such planes is necessarily infinite, it might seem that a continuous plate of metal would form the most adequate type of reinforcement. If such a plate were of graduated thickness in accordance with the progressive graduation of shearing stress towards the centre of the beam, it would satisfy some theoretical requirements. But it would not afford a satisfactory bond between the concrete and the steel, and it would not ensure that co-operation which is invariably demanded between the two materials. These objections might be overcome in part by punching holes all over the plate, with projecting rims; or by cutting triangular tongues to project into the surrounding concrete. A better plan would be to employ steel netting, or expanded metal, preferably the latter.

By taking a flat sheet of expanded metal, of suitable mesh and thickness, and bending it into a trough-like shape to suit the dimensions of the beam, the whole length in a longitudinal section of the beam could be adequately protected against shear, in whatever way its influence might be directed. Moreover, every part of the longitudinal section would be brought within the influence of the metal reinforcement. Towards the centre of the beam the shearing stress would be so small as to render reinforcement unnecessary, but considerable advantage would follow the employment of a continuous trough from one end of the beam to the other, and the saving to be expected from the omission of a few feet of metal would be quite insignificant.

In small beams the most simple course would be to use a single sheet of expanded metal for forming the trough-like reinforcement, selecting a gauge and mesh appropriate to the maximum shear.

In large beams, where the amount of metal might form a considerable item of expenditure, the proper course for adoption would be to employ two or more troughs of varying length and fitted one inside the other, so as to give the required graduation of resisting power, somewhat after the manner in which engineers graduate the flange-plates of a built-up girder.

The form of reinforcement here suggested for protecting a beam against the vertical, horizontal, or diagonal effects of shear, could be cheaply and easily applied. It would clearly be more efficient, and more in accordance with theory than reinforcement consisting of ties or stirrups at more or less widely separated intervals. Tension on diagonal planes could be calculated at the option of the designer to be met entirely, or in part, by the metal, and the greater part of the compression on diagonal planes at right angles would come upon the concrete.

This type of construction represents a simple and effective form of braced girder, and the calculations required for its design are perfectly free from complexity.

We will next assume that it is not necessary to have a solid rectangular beam, and that the top and bottom flanges may be connected by any convenient number of members, after the manner of a "Warren" or other variety of braced girder. Of course, the ties or struts so employed must be partly or entirely formed of concrete, in order to come within the type of construction under consideration, and to ensure safety against fire and corrosion. The arrangement of the web members may be varied at the discretion of the designer, and while those intended to resist tension must be reinforced, those subject to compression may be of concrete alone.

When diagonal ties are employed for resisting tension due to shear, one of two conditions is evidenced. Either the concrete between the ties must be subject to tensile stress of such intensity as to constitute a source of possible danger, or the concrete intervening between the ties must be of no value, and therefore unnecessary.

In small beams of this kind the saving to be expected from the omission of unnecessary material is too small to be taken into account, but, as we shall presently show, other circumstances may tend to recommend such omission to the architect.

In larger beams the construction of ties and struts as individual members, but securely built up and connected with the flanges, may often be advantageous for the purpose of saving unnecessary weight and expense.

Up to the present time very little use has been made of the type of design here indicated, but M. Visintini, a Swiss architect, has availed himself of its advantages by devising a complete system of construction which is now being introduced both on the Continent and in this country.

As a general rule the "Warren" type of girder is adopted, with a single system of triangulation, but use is also made of the "Linville," or N truss. Although it is frequently the case that the compression flange of a concrete-steel girder requires no reinforcement, steel rods are employed in this as well as in the tension flange, because a simple and effective means of connexion is thereby afforded for the ties. Moreover, the thickness of the top flange can be reduced, and the two flanges need not contain much more concrete than the amount necessary for the efficient protection of the metal. The rods serving to reinforce the ties are connected by bending their ends round the horizontal rods in the flanges, and they are held firmly in position by the enclosing mass of concrete.

The struts—whether diagonal, as in the "Warren" girder, or vertical, as in the "Linville" truss—are simply of concrete, but if circumstances rendered such a course necessary they could be suitably reinforced.

We are now concerned with general questions of beam design, and it would be inappropriate to go into full details relative to the application of such a system of braced girder construction. It may be remarked, however, that the spaces between the web members may be filled up solid, if thought desirable, or when a series of beams is employed in floor construction; the flues formed by the spaces can be left for use as ducts for pipes, wires, and air for heating or ventilation.

In order to make clear the method of calculating the proportions of beams designed in accordance with the system now under discussion, we give the following rules, which are those employed by M. Visintini. We have, however, adopted the notation hitherto used, and made the equations suitable for British units of measurement.

In ordinary building construction it may be assumed that the total load is applied to the top flange.

Denoting the reaction of the abutments by the symbol S, we have—

$$S = (n - 1)\ \frac{w\ \delta x}{2}$$

Where n = number of bays formed by the diagonals.
w = load per unit length.
δx = distance between diagonals, or length of bay.

For the moment of resistance in any member γ of the top flange we have—

$$R = \frac{w\ (\delta x)^2}{2}\ [(n + 1)(\gamma - \tfrac{1}{2}) - \gamma^2],$$

where γ = numerical order of any member of the top flange from the abutment.

For compression in any member of the top flange we have—

$$P_c = \frac{w\ (\delta x)^2}{2\ d}\ [(n + 1)(\gamma - \tfrac{1}{2}) - \gamma^2],$$

where d = distance between the top and bottom flanges.

As the top flange is built up uniformly, it is only necessary to calculate the moment of resistance for a cross section at the middle of the beam. This, of course, gives the maximum value, or $R_{max.}$ and the corresponding compression—

$$P_{c\ max} = R_{max} \div d.$$

From this the requisite area of concrete can easily be computed, due allowance being made for the resistance afforded by the steel reinforcement.

For the moment of resistance in any member γ of the bottom flange we have—

$$R = \frac{w\ (\delta x)^2}{2}\ \gamma\ (n - \gamma).$$

For tension in any member of the bottom flange—

$$P_t = \frac{w\ (\delta x)^2}{2\ d}\ \gamma\ (n - \gamma).$$

Having found the amount of tension, it is easy to proportion the reinforcement for the bottom flange, and as the beam is of uniform dimensions, calculations will be made at the centre of the beam, as in the case of the top flange. Following the usual practice, no account is taken of the resistance to tension afforded by the concrete.

In calculating tensile and compressive stresses on the diagonals, the method adopted is very similar to that we have already mentioned in connexion with shearing stresses.

Tension is calculated for any diagonal by the equation—

$$P_t = \frac{w\ \delta x}{2 \cos \theta} \times (n - 2\gamma + 1).$$

For small beams it would be inconvenient and scarcely necessary to employ rods of different diameters to suit the diminution of tension towards the centre of the beam, and it will be sufficient to calculate the stress for the first diagonal from the abutment. The sectional area of steel suitable for the stress so found may then be adopted for all the ties. For larger beams calculations should be made for successive diagonals until the tension becomes so small that further diminution in the area of the rods would be attended with no practical advantage. Here, again, no account is taken of the tensile strength of the concrete.

Compression on diagonal struts is similarly calculated by the equation stated above, but compressive stress is resisted by the concrete without the aid of reinforcement. For small beams a uniform sectional area of concrete may be adopted, while for large beams the sectional area of the struts should be proportioned to the amount of stress to be resisted.

If the struts be vertical, as in the case of a "Linville" or "N" girder, the rule requires modification, and becomes—

$$P_c = \frac{w\ \delta x}{2} \times (n - 2\gamma + 1).$$

The type of girder described above may not be thought the most desirable for universal employment, but its application may often be attended with advantage.

BOOKS RECEIVED.

The Planning and Fitting-up of Chemical and Physical Laboratories. By T. H. Russell, M.A. (B. T. Batsford.)

The Plumbers' Company's Diagrams: For the Use of Classes of Technical Instruction for Plumbers. (The Plumbers' Company. 1s.)

The Business Encyclopædia and Legal Adviser. By W. M. S. Knight. In six volumes. Vol. V. (Caxton Publishing Co.)

OBITUARY.

Mr. H. W. Brewer.—We greatly regret to announce the death, in his 67th year, of Mr. H. W. Brewer, the architectural draughtsman, which occurred on the 6th inst. at his residence in St. Quintin-avenue, W. Some remarks on the deceased gentleman will be found in our leading article this week. In our next issue we shall be able to give some further particulars of his work.

Mr. T. A. Page.—The death is announced of Mr. Thos. A. Page, a South Shields architect, aged 70 years. He was a native of Peterhead, and removed to Shields 40 years ago. He took an important part in the development of several estates in the borough, and retired a few years ago.

New Church, Llandilo.—The new Church of St. John, Maesteilo, Llandilo, was opened recently. The building has been erected at a cost of 2,650*l.*, and will provide accommodation for 150 persons. Mr. David Jenkins, of Llandilo, was the architect, and Messrs. Thomas Bros., of the same place, were the contractors.

GENERAL BUILDING NEWS.

CAR DEPOT, SUNDERLAND MUNICIPAL TRAMWAYS.—A new tramcar shed which the Sunderland Corporation has had built was opened on the 30th ult. The new structure is 346 ft. long, 62 ft. 6 in. wide, 21 ft. high to the trolley wire, and 36 ft. to the apex of the roof. The site of the building has a total area of 5,430 square yards. Besides being a car depot, the structure contains fitting, repairing, and painting shops, a smithy, several offices, and rooms for the use of the employees. The architect was Mr. F. E. Coates (Sunderland), and the contractor Mr. Samuel Warburton (Manchester).

PROPOSED NEW MISSION HALL AT HULL.—A scheme has been formulated for a new Methodist Mission Hall in Lowgate, Hull, to carry on the work of the George-street Chapel. The proposed structure will be close to the present George-yard Chapel, and will front Alfred-Gelder-street and the new Town Hall-square. Messrs. Gelder and Kitchen are the architects. The large hall will seat 1,750 people, each provided with a chair; the school-room will accommodate 600 children; while, in addition to 16 rooms for church and other purposes, there will be six lock-up shops with basement. The cost of the building, including electric lighting, furnishing, heating, etc., is estimated at 22,000*l.*

MEMORIAL CHURCH, BELFAST.—The ceremony of laying the foundation-stones of the John White Memorial Church, to be erected in Tennent-street, Belfast, took place recently. The new church is designed in the style of the Classic Renaissance. The walls are of best red facing bricks, backed with stocks, and the dressings of Giffnoch stone. The principal elevation is toward Tennent-street, and contains the two main entrance doorways, one opening into a vestibule in the centre of the front, and the other into a square tower at the south corner of the front. All the principal doors are fitted with double-action swing hinges. The tower, 12 ft. square inside, will be used as a vestibule on the ground floor, and will contain the stairs to a future gallery. Opposite the tower entrance is a 3 ft. doorway, leading to a corridor, off which are the minister's vestry and lavatory, a second door opening from the vestry to the church for the convenience of the minister. Beyond the vestry is the heating chamber, which is on a lower level, and is reached from the 9 ft. passage on the south side of the buildings. The wood to be used in the joinery is pitchpine, slightly stained, the roof trusses and purlins, which will be exposed inside, being of the same material. The ventilation will be on Boyle's system, and the heating will be by means of small-bore high-pressure pipes. The windows will be glazed with leaded glass. The dimensions of the church are 60 ft. long, 43 ft. wide, and 33 ft. high to level of the beam. When completed with gallery the church will accommodate 860 persons. The present contract price is about 1,800*l.* The contractors are Messrs. C. and W. M'Quoid, of Belfast, and Mr. John Seeds, also of Belfast, is the architect.

ROMAN CATHOLIC SCHOOLS, GORTON, NEAR MANCHESTER.—The memorial-stone has just been laid of the new schools of the Church of the Sacred Heart at Gorton. The schools, of which Messrs. Longworth and Son, Manchester, are the architects, will cost 1,200*l.*

PROPOSED NEW MUSEUM, CARDIFF.—A meeting of the Cardiff Museum Committee was held recently, when Mr. Edward Seward (architect) submitted amended plans of the proposed new museum. He estimated the cost of the buildings, according to these plans, at about 30,000*l.* It was pointed out that the committee were authorised to spend only 25,000*l.* Eventually the plans were referred to the honorary curators.

ROMAN CATHOLIC CHURCH, BROOKS'S BAR, MANCHESTER.—On the 26th ult., Dr. Casartelli, the Bishop of Salford, laid the memorial-stone of the new St. Alphonsus' Church and schools, which are in course of erection in Ayres-road, Brooks's Bar. The church and school are contained in one building. The ground floor has three class-rooms for boys and girls, and two rooms for infants, and will accommodate about 300 children. The upstairs room, which will be used for the present as the church, will seat 500 persons, and, when used as a school-room, will accommodate 604 children. The clergy house adjoins the church. The buildings are estimated to cost about 6,000*l.* The architect is Mr. O. C. Hill, of Manchester.

NURSES' HOME, BIRKENHEAD.—A new nurses' home in connexion with the Borough Hospital has just been opened at Birkenhead. The building, which contains about twenty bedrooms, accommodation for servants, a nurses' dayroom and sitting-room, dining-hall, etc., is situated with a frontage to Livingstone-street. Special provisions have been made for egress in case of fire. The dining-hall and dayroom on the ground floor may, if required, be converted into one assembly-hall. Mr. Edmund Kirby was the architect and Mr. Peter Rothwell the contractor. The cost of the site and building was 5,400*l.*

MASONIC HALL, MOVILLE, IRELAND.—On the 24th ult., a meeting of the Provincial Grand Lodge of Derry and Donegal was held in Moville for the purpose of dedicating the hall built by the brethren of St. Columb's Lodge No. 297. The hall is a two-story building, erected with local stone and relieved with bands and cornices. It is 47 ft. by 25 ft. The hall was erected from plans supplied by Mr. Thomas Wright, and the builder was Mr. Thomas M'Candless.

CHURCH, BEESTON HILL, LEEDS.—The foundation-stone of the new Church of the Holy Spirit at Beeston Hill, Leeds, was laid on the 26th ult. The church will be built of stone, from the plans of Mr. A. Prothero, of Cheltenham, which were selected in a limited competition, and will cost altogether 11,000*l.*

CHURCH, CULLYHANNA, IRELAND.—The new church erected in the parish of Cullyhanna, County Armagh, was dedicated recently. The church was designed by the late Mr. Hague, and after his death the designs for the internal work were supplied by his successor, Mr. M'Namara, architect, Dublin, and the contract for its erection was entrusted to Mr. James Wynne, of Dundalk. In addition to the new church, new schools and parochial houses have been erected.

COLLEGE IMPROVEMENT, DUNDEE.—It is proposed to reconstruct Dundee College from plans prepared by Sir Rowand Anderson, LL.D., who has estimated the cost at 80,000*l.* It is suggested that the scheme might be carried through in sections, a beginning being made at the western end.

TOWN HALL, HORBURY, YORKSHIRE.—The new Town Hall and Council offices which have just been erected at Horbury were opened on the 30th ult. The building, which has been erected at a cost of more than 6,100*l.*, is built of stone, and is in the Renaissance style, freely treated. The accommodation includes a Council chamber—the main feature of the building—which is 37 ft. long by 24 ft. wide. The windows are of stained glass. On the ground floor are offices for the collector and surveyor, and rooms for the clerk are also provided. The architects were Messrs. W. Hanstock and Son, of Batley.

BATHS, SOUTHPORT.—On the 30th ult. the Mayor of Southport (Mr. T. T. L. Scarisbrick) opened the new baths which the Corporation has constructed in Canning-road. The baths are principally for boys, and consist of an open-air swimming bath, 70 ft. long and 30 ft. wide, with a depth varying from 2 ft. 6in. to 3 ft. 6 in. There are also four private slipper baths and two needle baths. The water is heated by waste steam from the destructor. Mr. Hirst, the Borough Surveyor, designed the baths.

WORKHOUSE AND INFIRMARY, HUNSLET, YORKSHIRE.—The new Workhouse and Infirmary at Rothwell Haigh have been erected for the Hunslet Union on a site of eighteen or nineteen acres, which provides ample space for future extension, the present accommodation being for 450. The buildings consist of six groups—entrance buildings, main building, laundry and boiler-house, infirmary, lunacy wards, and isolation hospital. The main building, or workhouse proper, has the administrative block placed in the centre, in the front of which are the committee-room, business-offices, and master's house, and in the rear the dining-hall, kitchen, scullery, work-rooms, matron's office and stores, bakery and flour store. Upon each side of the administrative block, and connected by glazed conservatory corridors, are the pavilions for the male and female aged and able-bodied classes, with the necessary day-rooms, officers' rooms, offices, etc. The laundry and boiler-house buildings are placed in a central position between the main building and infirmary. The infirmary is a complete building in itself, and is connected with the main building by a covered corridor, from which the central portion of the building is entered, and from this point conservatory corridors to the left and right lead to the male and female pavilions. The infirmary faces the south, and from it there is access from all wards to large covered balconies at the level of the first and ground floors. The lunacy block provides accommodation for thirty-six inmates. The aged married couples' cottages are on a high part of the site near Rothwell Haigh, entirely separated from the main buildings by the Leeds and Rothwell road. The heating and hot water supply is on the low pressure principle. The buildings are lighted throughout by electricity, with 1,130 lamps from two combined compound engines, each of about 41 horse-power. There are two electric lifts at the centre of each infirmary pavilion. The electric current is also used for working ventilating fans and for three motors, one driving the economiser, another the bake-house machinery, and the third the automatic boiler stokers. Nineteen telephones have been fixed in various parts of the building. The total cost of the buildings is approximately 85,850*l.*, or 182*l.* per bed. The buildings were designed by Mr. J. H. Morton, of South Shields. The general building contractors were Messrs. Harold Arnold and Son, of Doncaster. The consulting engineers for the electrical work were Messrs. Shepherd and Watney, Leeds.

VILLAGE CHURCH, GOSBERTON, NEAR SPALDING.—A new village church was opened at Gosberton Clough, near Spalding, recently. The new church, which has been built to accommodate 120 persons, consists of a nave, chancel, and vestry. The cost of the building is about 1,300*l.*, and of this sum over 1,000*l.* has been raised. The architects were Messrs. W. Bucknall and J. N. Cooper, of Westminster, and the contractor was Mr. Wm. Wade, of St. Neots, Hunts.

NEW BUILDINGS, GLASGOW TECHNICAL COLLEGE.—From the annual report of the Glasgow and West of Scotland Technical College we learn that the new buildings have been carried on during the year as rapidly as was anticipated, although unexpected difficulties were met with in the foundation work. The whole of the first section of the buildings has now reached foundation level, and certain portions are at a much more advanced stage. The total expenditure involved by the erection of the buildings, exclusive of equipment, will be not less than 210,000*l.* Of this sum the Governors announce promises of donations and grants amounting to 182,382*l.*

NEW BAPTIST CHURCH AND SCHOOLS, TWICKENHAM GREEN.—Designs have been approved for this church and schools. The block comprises church, seating 619 adults, two vestries, cloakroom, church parlour, large schoolroom, infants' room, seniors' classrooms, kitchen, and the usual conveniences. The buildings are designed in a late period of Perpendicular Gothic, freely treated. A bold square tower forms a prominent feature at one corner. The estimated cost is about 5,550*l.* The architects are Messrs. George Baines and R. Palmer Baines, Clement's Inn, Strand, London, W.C.

UNITED METHODIST FREE CHURCH, HIGHAMS PARK, E.—The foundation-stone laying ceremony of this church took place on the 3rd inst. The building occupies a prominent corner site. The design is in a late period of Gothic, freely treated. The facings are in pressed red bricks, and the dressings are in white Costessey work. The block comprises church, with transepts and apse, and two vestries, and the usual conveniences. The contract amount of the building is 1,828*l.* This building will form the school when the future church is erected, and is only the first portion of a large scheme. The architects are Messrs. George Baines and R. Palmer Baines, Clement's Inn, Strand, London, W.C.

SCHOOL, PENGAM.—The foundation-stone of the new Lewis' Endowed School, Pengam, was laid recently. The structure is being erected according to plans drawn by Mr. R. S. Griffiths, architect, of Tonypandy, by Messrs. E. Turner and Sons, builders, of Cardiff.

SCHOOL, CWMAMAN, ABERDARE.—A new school has been erected at Godre Aman, a suburb of Aberdare. It provides accommodation for 250 scholars, having five classrooms and a central hall. It was built from plans prepared by Mr. T. Roderick, architect, Aberdare, and the contract was carried out by Mr. J. Jones, Aberdare, at a cost of 26,000*l.*

SANITARY AND ENGINEERING NEWS.

ST. HELENS WATER SUPPLY.—The new pumping station at Melling, near Ormskirk, which has been provided by the St. Helens Corporation as an additional source of water supply, was opened by the Mayor of St. Helens (Councillor F. R. Dixon Nuttall) on the 1st inst. The new pumping station includes two boreholes, each 24 in. diameter and 560 ft. deep, with horizontal compound engine, designed by Mr. J. J. Lackland, the Borough Water Engineer, and constructed by Messrs. Robinson, Cooks, and Co., of St. Helens. The contract for the boreholes was let to Messrs. Timmins and Son, of Runcorn, and for the work generally Messrs. Hughes and Stirling, of Bootle, were the contractors.

RESERVOIR, BUXTON.—A meeting of the Buxton Urban District Council was held on the 2nd inst. Messrs. Hill and Sons, engineers, Manchester, wrote stating that the work of constructing the new Stanley Moor reservoir, which will cost 100,000*l.*, would be shortly commenced. Contracts were sealed with Messrs. G. and T. Earle for the supply of cement, with Messrs. Oates and Green for pipes, and with the Staveley Coal and Iron Company for cast-iron pipes.

SEWERAGE WORKS, SKEGNESS.—Recently Col. A. G. Durnford, R.E., Local Government Inspector, conducted an inquiry at Skegness concerning the Urban Council's application to borrow 10,360*l.* for new sewerage works. The scheme was explained by Mr. J. R. Elliott, A.M.I.C.E., representing the engineers, Messrs. Elliott and Brown, of Nottingham. It consists of new bacterial purification works, additional pumping station, and improvements and

extensions to the sewerage rendered necessary by the rapid growth of the district. There was no opposition.

MISCELLANEOUS.

Professional and Business Announcements.—Messrs. George Munday and Sons, builders, have removed from Catherine House to Muscovy House, Trinity-square, E.C.—Mr. C. F. Hayward, architect, has removed his offices from 47, Museum-street, to 50, Great Russell-street, W.C.

New Theatre, Holloway-road.—The New Marlborough, in Holloway-road, is the latest addition to North London theatres. In arranging the plan, Mr. Matcham has taken full advantage of an exceptionally favourable site, and has successfully utilised the free access to it. In the main facade to Holloway-road is the vestibule through which the principal seats are reached, while the sides are used for gallery and pit entrances and emergency exits. From every seat in the house a clear and free view of the proscenium is easily obtained, and the variation in the sweep of the upper circle gallery adds greatly to the value of the dress circle below, which thereby obtains free air space to the roof. The gallery is well arranged, and has the advantage of a lantern in the centre, which acts as an air-outlet to the whole theatre. The exits throughout are direct and easy; and in an emergency the full complement of 3,000 persons could be emptied into the streets with a minimum amount of risk. The wide staircases, with dividing handrails for each person, are invaluable safeguards in the event of a panic. The Holloway-road facade is finished in red brick and stone, and is designed in a Renaissance of well-known modern character. The vestibule is treated in a similar style, while the foyer shows a more decided French influence in the decoration of an unhappily-fashioned three-quarter dome. The auditorium is decorated in fibrous plaster in "L'Art Nouveau" style, the eccentricities of which are happily toned by a quiet colouring of cream and white. In general the effect is unobtrusive, and although the detail is of a debased nature, it is much more pleasing than the great majority of our London and suburban theatres. The builders are Messrs. Patman and Fotheringham.

Gordon Boys' Home, Nottingham.—The Duke of Portland recently laid the memorial-stone of the new buildings which have been erected at Nottingham by public subscription for the local Gordon Home for Destitute Boys, after plans and designs by Mr. Ernest R. Sutton. The new building will accommodate seventy-two boys; and a sum of 7,000*l.*, whereof a little more than one-half is already subscribed, is needed to complete the work. The home was first established shortly after the death of General Gordon in 1885, and the stone bears an inscription to his memory.

City-square, Leeds, and the New Statuary.—The new statuary recently presented to the citizens, and set up in City-square, consists of Mr. Brock's equestrian group of the Black Prince, with four sets of nude figures, emblematical of Morn and Even, and monuments of Dr. Hook, a former vicar of Leeds, and Joseph Priestley, these being the gift of Colonel Harding. The two figures of James Watt and John Harrison, a Leeds philanthropist, both sculptured by Mr. H. C. Fehr, are given by Mr. Richard Boston and the late Mr. R. Wainwright. Colonel Harding, an alderman of the city, has taken a prominent share in promoting a taste for art in Leeds. The Woollen trade was founded in the West Riding through the influence of Philip Van Artevelde, who induced Edward III. to extend his patronage and protection to the immigrant Flemish artisans, but it was not until the middle of the seventeenth century that Leeds obtained pre-eminence over its once successful competitors in Bradford and Halifax. The improved machinery for working cloth was invented and introduced by William Hirst, a native of Leeds.

Working-class Rents and Wages in London.—A blue-book lately issued by the Board of Trade states that the average rental of a working-class family in London is estimated at from 5s. to 6s. per week. Returns show that whereas the Peabody Trust received an average rental per room of 1s. 10d. in 1874, the same rental had increased to 2s. 3½d. in the years 1890, 1900, and 1901. The increase, 24 per cent., is found to have been almost uniform throughout the period under review. The wages earned by workmen, including what their families also may earn, vary from 20s. to 40s. per week, the average being 29s. 10d., as compared with 15s. to 22s. per week, with an average of about 18s. 6d. earned by all classes of agricultural labourers and their families in England. Food and rent are the highest items of expenditure. Out of 18s. 6d. per week an agricultural labourer's family expend no less than 13s. upon food alone. The tables emphasise the fact that the expenditure upon food is highest, relatively, in the case of the small incomes, and evince that during the interval 1877-1901 a large decrease, about 30 per cent., has taken place in the price of food. It is stated that the expenditure on bread does not increase with the amount of the income; thus, whilst 3s. 6d. on bread and flour, and 4s. 8¾d. on meat are spent by families having incomes of less than 25s. a week, the corresponding amounts are 3s. 4¾d. and 7s. 1¾d. for families whose incomes range from 35s. to under 40s. per week.

Liverpool Cathedral.—A special meeting of the Liverpool Cathedral Committee was held on the 28th ult., when samples of various stones were submitted, and it was resolved, after very careful consideration, to employ the local red sandstones in the erection of the Cathedral. The architects also submitted plans of details, and it is expected that the arrangements will be made for laying the foundations early in the new year.

Collapse of a Wall at Belfast.—The wall of the moulding shop of Messrs. Fairbairn, Lawson, Combe, and Barbour's foundry, Belfast, collapsed on the 28th ult., the result being that several men were killed and others seriously injured. At the time the accident occurred, eight men and two boys were engaged executing structural alterations at the foundry, and they all were buried in the ruins of a very high wall. It was not known for the moment what was the extent of the disaster, but willing hands at once set to work to extricate the unfortunate sufferers. It was soon apparent, however, that so heavy had been the fall of material that it was hopeless to expect to rescue all the entombed men alive. Six dead bodies were subsequently recovered, while two men who were brought out alive were so seriously injured that but little hope was entertained of their recovery.

Railway Development in Ireland.—The directors of the Great Northern Railway Company, Ireland, at an extraordinary meeting of the proprietors convened at Amiens-street, Dublin, on Tuesday, the 6th October, passed the necessary resolutions authorising that company, under the powers conferred upon them by the Castleblayney, Keady, and Armagh Railway Extension of Time Act, 1903, to subscribe the necessary capital, namely, 350,000*l.*, for the construction of the Castleblayney, Keady, and Armagh Railway, which will now be proceeded with. A Bill for the construction of a line from Drogheda to Mullingar, in connection with the steampacket service to that port organised by the Lancashire and Yorkshire Railway, was passed last Session of Parliament, the capital for which is 350,000*l.* The engineer for both these lines is Sir Benjamin Baker, C.B., and the contracts for construction, amounting to 613,000*l.*, have been placed in the hands of Mr. Robert Worthington, of Dublin.

University Hall, Clare Market.—The award of Mr. Thomas Blashill, F.R.I.B.A., in an arbitration, held in connexion with the erection of University Hall, Clare Market, has now been published. The contractor, Mr. Howell J. Williams, claimed 3,061*l.* 17s. 2d., and has been awarded 476*l.* 14s. 6d. The claimant conducted his own case, and the architect, Mr. Maurice B. Adams, acted on behalf of the trustees. No solicitors were employed.

The Junior Institution of Engineers.—On the invitation of the British Fire Prevention Committee a large number of members of this Institution paid a visit to the International Fire Exhibition at Earl's Court on the 2nd October. They were received by Mr. Edwin O. Sachs, the Chairman of the Committee, Mr. Ellis Marsland, the Hon. Secretary, and Colonel Dickson. Under their guidance the whole of the exhibits were closely inspected, where possible the apparatus being shown in operation. Modern fire appliances, including engines and escapes, were demonstrated, and the London Salvage Corps turned out from their station in the Western Gardens, the Chief Officer, Colonel Fox, being present. The party subsequently witnessed the performance of "Fighting the Flames" in the Empress Theatre, the historical and technical features of which were much appreciated.

Labour Market in the Colonies.—The October circular of the Emigrants' Information Office states that work has been plentiful in Canada in all branches of labour during this year. In New South Wales it will be some time before the State can recover from the recent drought. At Sydney many men are out of employment; there is a fair demand at Young for farm labourers, stonemasons, carpenters, bricklayers, and smiths. In Victoria the effects of the drought continue, and there is no demand for labour. A report from Adelaide in South Australia states that there are "great numbers of unemployed among artisans and labouring classes generally." Only workmen of exceptional ability, who have a little money to live on at first, can hope to succeed. In Queensland there is no demand for labourers in any building trade. In Western Australia there is a demand for mechanics in the building and other trades at Northam, for men in the building trades only at Guildford and Bunbury, and for carpenters on the Murchison goldfields; at Perth the supply is sufficient, though some reports say that bricklayers and plasterers are much wanted; in no other part of the State is there any demand for more mechanics. In New Zealand there is a good opening for carpenters, bricklayers, painters, plumbers, tinsmiths, plasterers, sash and door makers, turners, gasfitters, etc. In Cape Colony, mechanics, if they are really skilled workers, have good chances of employment, but there is no opening for half-trained men. The best demand is for skilled carpenters, bricklayers, masons, painters, coachsmiths, plumbers, and wiremen. In Natal the building trades continue busy, and there is a demand for skilled carpenters, joiners, bricklayers, and plasterers, as well as for metal turners, fitters, blacksmiths, machinists, moulders, carriage builders, and wood turners. But all such mechanics must be thoroughly competent, for there is no opening for second-rate men. Permits are still required by those proceeding to the Transvaal; they are not issued in this country, but must be applied for at the Permit Office at the Port in South Africa at which the emigrant lands. Application forms may be obtained at the Emigrants' Information Office, and elsewhere. The building trades have become slacker, and there is a fair demand only for carpenters, bricklayers, stonemasons (wallers and cutters), plumbers, and plasterers, but they must be expert. In the Orange River Colony there is a fluctuating demand for good carpenters, masons, fitters, and painters.

CAPITAL AND LABOUR.

Sunderland Joiners.—The Sunderland house joiners returned to work on the 28th ult., but employment could be found for only half of the men who desired to start.

LEGAL.

RUSHING UP A WALL.

In the Vacation Court on Wednesday, counsel applied, ex parte, to Mr. Justice Bucknill on behalf of the plaintiff in the case of Slaters, Ltd., *v.* Potter, to restrain the defendant from continuing to erect a wall so as to interfere with the plaintiffs' ancient lights, and for leave to serve the defendant with notice of motion with the writ for Wednesday next.

His lordship asked how he was to know that the defendant's wall interfered with the plaintiffs' lights.

The learned counsel read an affidavit which had been filed by the plaintiffs, stating that on the 6th inst. defendants commenced to build a wall within about 6 ft. 7 in. from the plaintiffs' ancient lights without their permission. The affidavit also stated that the wall had been already built up to a height of 10 ft., and that the same had very materially indeed darkened their lights.

His lordship: Very well; you can take an interim injunction over Wednesday next, restraining defendant from building the wall higher than will darken your premises. They must not be restrained from building a wall which will not darken your premises.

The learned counsel: No. Then I may serve notice of motion for next Wednesday?

His lordship: Yes.

STRAND ANCIENT LIGHT CASE.

The case of the Hotel Cecil, Ltd., *v.* the Savoy Hotel, Ltd., came before Mr. Justice Bucknill in the Vacation Court on Wednesday, on a motion by the plaintiff company for an interim injunction restraining the defendant company from building so as to obstruct the plaintiffs' ancient lights.

On the case being called on, Mr. Bramwell Davis, K.C., for the plaintiffs, said that his learned friend, Mr. McCall, K.C., appeared for the defendants, and wished for time to answer affidavits. If the case stood over for this purpose the plaintiffs required an undertaking from the defendants that they would not build higher before the case was heard. He understood that defendants were willing to give that undertaking.

Mr. McCall said that was so, and that the terms of the undertaking were practically settled. He suggested that the case should stand over for a week on the terms endorsed on the briefs.

This was agreed to.

ARRANGEMENT IN ANCIENT LIGHT DISPUTE.

The case of Godson *v.* Robinson and Fisher was mentioned to Mr. Justice Bucknill in the Vacation Court on Wednesday, on an application by the plaintiff for an interim injunction restraining defendants until the trial from building so as to obstruct the plaintiff's ancient lights.

On the case being called on, counsel stated that on the evidence there was considerable con-

flict of fact, and the parties had agreed to take the following order, without prejudice to any question enabling the plaintiff to apply for a mandatory order at the trial, the defendants would undertake to abide by any order the Court might make at the trial to pull down any building erected since September 21, 1903; that the action should be set down at once, the costs of this motion to be costs in the action.

His lordship assented to this arrangement.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

22,144 of 1902.—A. Paillett: *Swing Doors.*

A swing door comprising in combination a main door, a carriage to which the main door is suspended by means of a centre pivot, rails in the top of the door frame on which said carriage runs, arc-shaped jambs of the door frame, four side wings hinged to the inner and outer side of the ends of the main door and stays for securing said side wings in their position at an angle to the main door.

24,647 of 1902.—J. Kulhanek: *Construction of Flights of Stairs or Steps.*

The construction of flights of stairs or steps by means of reinforced concrete, consisting in that the supporting members are constituted by vertical ribs of cement arranged at equal intervals one from the other and running longitudinally of the flight from one landing to the next.

11,394 of 1903.—F. W. Johnson: *Venetian Blinds.*

A method of gathering the laths of Venetan blinds at the top, by which method the laths are each in succession, and commencing with the uppermost one, caught up and raised by spiral terminations to vertical spindles hanging from the top board and rotated by any suitable means, the said spirals working in slotted holes in the laths and the tapes being attached by piping to rollers provided on the edge of the laths.

17,061 of 1903.—J. D. Wilson: *Brick Kilns.*

In brick kilns a continuous flue overlying the chambers of the kiln and connected thereto by means of smaller flues and valves, in such a manner that the hot gases from the burning bricks must pass on their way to chimney the apertures through which the vapours from the drying bricks are ascending.

16,950 of 1903.—J. H. Murphy and E. M. Camp: *Retaining Material for Plaster and the like.*

The object of this invention is to provide an improved retaining material for mortar or plaster cheaper than other forms of metallic lath, which prevents loss or waste of plastering material and reduces thickness of plaster ordinarily used. It consists of a flexible sheet of metal or of paper or cloth or other material which may be treated to render the same fireproof, and which is secured as a backing in close relation with a sheet of reticulated material having open meshes such as fence netting constructed of wire. The netting may be permanently fastened to the backing sheet on one or both sides in contact therewith in any preferred manner. The backing sheet serves to receive all of the plastic material pressed through the meshes of the net, and by resistance to said pressure acts to spread the material behind the net entirely during the clinch round the wire and retaining the plaster until it sets.

23,932 of 1902.—T. Caunt, Sen., T. Caunt, Jun., and F. Caunt. *Sash Windows.*

This invention relates to sash windows fitted with a swinging frame carrying the window panes and pivoted to a sliding strip or fixed frame, the swinging frame being capable of turning through an angle of 180 degrees. A weather-tight joint is obtained between the fixed and swinging frame parts by means of a bead and groove device.

21,143 of 1903.—J. Fooks: *Casement Stays for Windows.*

This invention has for its object to provide a stay to be bolted to a mullion or in a socket fixed on a mullion for single or double casement windows. A perforated flat iron stay is provided at one end with a handle and at the other with a long slot, through which a pin is passed loosely, which pin is riveted to two lugs cast upon a perforated back-plate which is fixed to the window mullion sash or frame. A running perforated block is passed over the stay, and is provided with a screw set pin. The perforated block is loosely riveted to a back-plate, which is fixed to the window-frame, so that thus the stay connects the window to the window-frame and is fixed in any position by means of the set screw.

15,176 of 1902.—J. Knox: *Producers and Kilns for Burning Bricks, Terra-cotta Goods, and the like.*

The use of a hollow radial or other brick in the inside of a kiln for the heating of the secondary air or producer gases.

19,366 of 1902.—W. E. Hitch: *Electric Cable Conductors.*

In the manufacture of an electric cable, the combination with a pair of insulated conductors of a magnetic screen formed of a separating strip and of an enclosing casing, both of magnetisable metal, the separating strip being spirally twisted about its own axes, and the insulated conductors being laid along the spiral convolutions of the separating strip at opposite sides thereof, and the enclosing casing being formed of a tape or wire of magnetisable metal coiled about the whole, and in metallic connexion with the edges of the spirally twisted separating strip.

24,295 of 1902.—J. A. Shepherd: *Manufacture of Embossed Wall Coverings and like Material.*

The manufacture of embossed wall coverings and like materials, which consists in compounding wood dust or other ingredients with gum tragasol and linseed oil.

* All these Applications are in the stage in which opposition to the grant of Patents upon them can be made.

MEETINGS.

Saturday, October 10.

Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Sewage and Destructor Works, Ealing. 2.15 p.m.

Monday, October 12.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. H. R. Kenwood on "Elementary Statistics." 7 p.m.

Liverpool Architectural Society.—Opening address by the President, Mr. John Woolfall. 6 p.m.

Tuesday, October 13.

Architectural Association.—Preliminary meeting of the School of Design. Speakers: Messrs. Walter Cave and J. S. Gibson. 7 p.m.

Sanitary Institute (Lectures for Sanitary Officers).—Dr. A. Wellesley Harris on "Water: Composition, Pollution, and Purification." 7 p.m.

Institute of Sanitary Engineers, Ltd.—Mr. A. A. H. Scott on "Building Construction so far as it Relates to Sanitation." 7 p.m.

Wednesday, October 14.

Architectural Association Camera and Cycling Club.—Mr. C. H. Oakden on "Little Known Irish Abbeys," illustrated with lantern slides. 7.30 p.m.

Sanitary Institute (Lectures and Demonstrations for Sanitary Officers).—(1) Inspection in the district of Islington and at the Borough Disinfecting Station, 2 p.m. (2) Mr. J. Wright Clarke on "Details of Plumbers' Work." 7 p.m.

Institute of Sanitary Engineers, Ltd.—Discussion on the paper read by Mr. G. Freebairn Stow on February 11 on "The Biological Treatment of Sewage: Some Facts and Figures Compiled from Three Years' Practical Working of Bacteria Beds." 7. p.m.

Carpenters' Company (Lectures on Sanitary Building Construction).—Dr. A. Wynter Blyth on "Sanitary Arrangements of Buildings." 7.30 p.m.

Thursday, October 15.

London Master Builders' Association.—Council meeting at 4 p.m.

Friday, October 16.

Architectural Association.—Messrs. A. T. Bolton and H. P. G. Maule on "The Day School in Relation to Architectural Pupilage." 7.30 p.m.

Institution of Mechanical Engineers.—Mr. H. Davey on "The Newcomen Engine." 8 p.m.

The Southern Counties Master Builders' Federation.—Council meeting at 12.0 in King's Rooms, Royal Pavilion, Brighton. Half-yearly general meeting at 12.30.

Saturday, October 17.

Junior Institution of Engineers.—Visit to the new Vauxhall Bridge Works. Members will assemble at the Westminster entrance at 3 p.m.

Sanitary Institute (Demonstration for Sanitary Officers).—Inspection at Battersea Municipal Milk Depot and Disinfecting Station. 3 p.m.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

September 24.—By Grimley & Son (at Birmingham).

Belbroughton, Worcester.—Whitehouse's Farm, 29 a. 0 r. 4 p., f., y.r. 43*l.* 10s.	£860
Dordale Farm, 55 a. 3 r. 3 p., f., y.r. 89*l.* 5s.	1,875

By David Burnett & Co. (at Llandudno Junction).

Trefriw, Carnarvon.—Conway-rd., enclosures of land, 21 a. 0 r. 19 p., f. (including net fishery rights)	780

By Hall, Pain, & Goldsmith (at South Hayling).

Hayling Island, Hants.—The Hayling Island Gas Works, f. (as a going concern)	1,800

September 25.—By C. F. Moore (at Nailsworth).

Leighterton, Gloucester.—The Church or Slait Farm, 428 a. 3 r. 22 p., f.	3,760
Royal Oak Inn and 9 a. 1 r. 0 p., f., y.r. 24*l.*	2,760

By Spelmans' (at Norwich).

Norwich.—42, Unthank-rd., f., p.	1,030
Trory-st., freehold stabling, p.	145
4, Oxford-st., f., y.r. 24*l.*	405
Great Plumstead, Norfolk.—Two cottages, f., w.r. 3*l.* 10s.	165

By Simmons & Sons (at Reading).

Shinfield, Berks.—Church-rd., etc., various enclosures of land, 97 a. 3 r. 37 p., f.	3,480
Reading-rd., etc., various building sites, 105 a. 1 r. 24 p., f.	£6,420
May's Farm, 28 a. 3 r. 11 p., f.	1,500
Clare's Green Farm, 40 a. 2 r. 24 p., f.	1,401
Spencer's Wood, four cottages and 1 a. 3 r. 33 p., f.	500
Two cottages and 2 a. 2 r. 27 p., f.	250
Church Lane Farm, 81 a. 0 r. 32 p., f.	2,400
Six Bells p.-h., and 5 a. 1 r. 33 p., f., y.r. 20*l.*	500
Three cottages and 6 a. 2 r. 36 p., f.	930
Lane End Farm, 145 a. 0 r. 1 p., f.	6,100
Shinfield Grange Estate, 163 a. 1 r. 37 p., f.	6,500
Four small holdings, 20 a. 2 r. 1 p., f.	1,785
Badger's Farm, 8 a. 0 r. 8 p., f.	1,500
A freehold estate, 49 a. 0 r. 2 p.	1,575
Parrott's Farm, 81 a. 0 r. 27 p., f.	2,400

By Gillart & Sons (at Towyn).

Llanfrothen, Merioneth.—Hendregwenllian and Ogof Llechwyn Farms; also two small holdings, 656 a. 2 r. 37 p., f.	3,250
Towyn, Merioneth.—Tan-y-Coed Isaf and Bod Gadfan Farms, 213 a. 3 r. 7 p., f.	2,800
Dolgelly, Merioneth. — Freehold premises, formerly the Old Shire Hall, County Hall, and House of Correction	600

September 28.—By Phibbs Gibson.

Southall, Middlesex.—Abbott's-rd., eight plots of freehold building land	420

By Kemsleys'.

Woodford.—Wavertree-rd., two plots of freehold building land	310
Ilford, Essex.—29 to 39 (odd), Wilton-rd., f., w.r. 117*l.*	1,280

By Elliott, Ellis & Co. (at Plymouth).

Plymouth.—14, Old Town-st., and 5 and 6, Market-pl. (S.), area 4,450ft., f., y.r. 375*l.*	9,050

By James Stooke (at Totnes).

Buckfastleigh, Devon.—Hayford Estate, 144¼ a., f.	3,280
Ugborough, Devon.—East Peeke and Pennaton Estates, 127 a., f.	2,560

September 29.—By C. Rawley Cross & Co.

Shepherd's Bush.—279, Uxbridge-rd., u.t. 59 yrs., g.r. 6*l.* 5s., e.r. 50*l.*	535
Kensington.—62 and 64, Masbro'-rd., f., w.r. 67*l.* 12s.	815
68, Masbro'-rd. (S.), f., y.r. 6*l.* 8s.	720
14, Faroe-rd. (with workshop), f., p.	155
Fulham.—Lillie-rd., three freehold building plots	800
Mitcham, Surrey.—30 to 42 (even), Bath-rd., u.t. 55 yrs., g.r. 36*l.* 15s., w.r. 119*l.* 12s.	550
Willesden.—18 and 20, Burns-rd., u.t. 87 yrs., g.r. 11*l.*, y.r. 62*l.*	480

By Fisher, Stanhope & Drake.

Dalston.—83, Sandringham-rd., u.t. 62½ yrs., g.r. 8*l.*, e.r. 60*l.*	550

By Herring, Son, & Daw.

Regent-st.—33 and 34, Carnaby-st. (S.), area 1,370ft., f., p.	3,800

By W. F. Laing.

Stepney.—132, Jamaica-st., u.t. 10 yrs., g.r. 4*l.*, q.r. 34*l.*	100
Mile End.—65 and 75, Carlton-rd., u.t. 23 yrs., g.r. 6*l.*, y.r. 56*l.*	440
12 and 13, Carlton-sq., u.t. 24 yrs., g.r. 6*l.*, y.r. 56*l.*	470

By Robins, Gore, & Mercer.

Soho.—173, Wardour-st. (S.), beneficial lease for 8¼ yrs., y.r. 100*l.*, with goodwill, stock, etc.	125

By Frederick Warman.

Stroud Green.—131, Ferme Park-rd., u.t. 86 yrs., g.r. 8*l.*, e.r. 45*l.*	450
Hornsey.—Priory-rd., Olivette, u.t. 96 yrs., g.r. 10*l.* 10s., e.r. 60*l.*	575

By Wiltshire & Thurgood.

Lewisham.—19, Avenue-rd., f., w.r. 32*l.* 10s.	350
Catford.—10, Westdown-rd., u.t. 70 yrs., g.r. 8*l.* 10s., e.r. 45*l.*	400

By J. M. Leeder & Son (at Swansea).

Llanelhe, Carmarthen.—Dogsbrook Farm, 15 a. 3 r. 22 p., f.	650

By Long & Sons (at Masons' Hall Tavern).

Turnham Green.—High-rd., Crown and Anchor Tavern, u.t. 2¾ yrs., y.r. 100*l.*, with goodwill	2,400

September 30.—By Buckland & Sons.

Windsor, Berks.—The Windsor Race-Course, area 121 a. 3 r. 0 p., u.t. 19 yrs., y.r. 700*l.*, p.	22,000

By John Bott & Sons.

Herne Hill.—205 and 217, Norwood-rd., f., e.r. 87*l.*	1,175

By Mark Lidll & Son.

Greenwich.—7 to 12, Chevening-rd., u.t. 90 yrs., g.r. 28*l.* 10s., w.r. 249*l.* 12s.	1,790

By Linnett & Lane.

St. John's Wood.—32 and 34, Henry-st., u.t. 14 yrs., g.r. 8*l.*, w.r. 104*l.*	230
Harleaden.—70, St. John's-av., u.t. 97 yrs., g.r. 6*l.*, e.r. 34*l.*	330

By Windrum & Cleeve.

Upton Park.—8, 10, 12, and 14, Thackeray-rd., f., w.r. 130*l.*	1,550
Poplar.—158 and 160, Brunswick-rd., u.t. 70 yrs., g.r. 8*l.*, w.r. 72*l.* 16s.	550
47 and 49, Willis-st., u.t. 39 yrs., g.r. 6*l.*, w.r. 52*l.*	300
26, 28, and 30, High-st. (S.), u.t. 64 yrs., g.r. 15*l.*, w.r. 92*l.* 6s.	410
Bromley-by-Bow.—13 to 23 (odd), Wyvis-st., u.t. 62 yrs., g.r. 22*l.* 10s., w.r. 197*l.* 12s.	1,580

By Perkins & Sons (at Southampton).

Itchen, Hants.—Highlands-rd., The Self Defence (business premises, with off-license), u.t. 966 yrs., g.r. 7*l.*, y.r. 80*l.*	1,900

By Breadmore & Webb (at Richmond).

Barnes.—High-st., freehold building site, area 5,230ft.	1,085

October 1.—Newbon, Edwards, & Shephard.

Catford.—44, Bushey Green, area 4,574ft. f., p.	1,000
Marylebone.—21, Seymore-pl. (S.), u.t. 25 yrs., g.r. 23*l.*, e.r. 150*l.* 16s.	535
Peckham.—35, Willowbrook-rd. and 5, Colgrove-rd. (S.), u.t. 51 yrs., g.r. 5*l.* 5s., y.r. 40*l.*	300

Victoria Park.—21 to 27 (odd), Dagmar-rd., u.t. 35 yrs., g.r. 16*l.*, w.r. 150*l.* 16s.	£855
Barnsbury.—107, Offord-rd., f., y.r. 38*l.*	750
Balls Pond.—42 and 44, Norfolk-rd., u.t. 56 yrs., g.r. 10*l.*, e.r. 84*l.*	665
Finsbury Park.—15a, Eade-rd., u.t. 81½ yrs., g.r. 5*l.*, y.r. 36*l.*	350
Stoke Newington.—61, Brooke-rd., u.t. 74 yrs., g.r. 7*l.*, y.r. 42*l.*	465
109, Brooke-rd., u.t. 74 yrs., g.r. 6*l.* 10s. e.r. 40*l.*	390
Wood Green.—Waverley-ter., f.g.r. 9*l.*, reversion in 96 yrs.	205
New Barnet, Herts.—Lytton-rd., four freehold residences, y.r. 136*l.*	1,630
Lytton-rd., freehold corner plot of building land	400

By T. B. WESTACOTT.

Fitzroy-sq.—16, 18, and 20, Southampton-st., u.t. 21 yrs., g.r. 22*l.* 1s., y.r. 195*l.*	1,530
Camden Town.—123, Albert-st., u.t. 20 yrs., g.r. 7*l.* 7s., y.r. 48*l.*	360
Somers Town.—14 and 19, Charles-st., u.t. 24 yrs., g.r. 20*l.*, w.r. 108*l.* 5s.	405
Holloway.—21, Langdon-rd., f., e.r. 38*l.*	460

October 2.—By BRADSHAW BROWN & CO.

Hoxton.—21 and 23, Holt-pl., f., w.r. 52*l.*	545
61, Hyde-rd., f., w.r. 41*l.* 12s.	415
Millwall.—1 and 3, Mellish-st., u.t. 28 yrs., g.r. 4*l.* w.r. 50*l.* 14s.	260

By P. J. DIXON & SON.

Bethnal Green.—21, 23, and 25, Dinmont-st., u.t. 13½ yrs., g.r. 12*l.*, w.r. 106*l.* 12s.	300
104 and 106, Treadaway-st., u.t. 33 yrs., g.r. 8*l.*, w.r. 78*l.*	450
17, Clarkson-st., u.t. 33 yrs., g.r. 4*l.*, w.r. 36*l.* 8s.	255

By WALTER HALL.

Norwood.—16, 20, 22, and 24, Rockmount-rd., u.t. 73½ yrs., g.r. 30*l.*, y.r. 140*l.*	800
Hendon.—Pollard-rd., f.g.r. 42*l.*, reversion in 78 yrs.	860
Bexley, Kent.—Ivy Villas, f.g.r. 27*l.*, reversion in 92 yrs.	590

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beer-house; p.h. for public-house; o. for offices; s. for shops.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 16 0	per 1,000 alongside, in river.
Rough Stocks and Grizzles.....	1 13 0	,, ,, ,,
Facing Stocks....	2 12 0	,, ,, ,,
Shippers	2 5 0	,, ,, ,,
Flettons	1 10 0	,, at railway depôt
Red Wire Cuts ..	1 13 0	,, ,, ,,
Best Fareham Red	3 12 0	,, ,, ,,
Best Red Pressed Ruabon Facing	5 0 0	,, ,, ,,
Best Blue Pressed Staffordshire ..	4 5 0	,, ,, ,,
Do. Bullnose	4 11 0	,, ,, ,,
Best Stourbridge Fire Bricks	4 8 0	,, ,, ,,

GLAZED BRICKS.

Best White and Ivory Glazed Stretchers.....	13 0 0	,, ,, ,,
Headers	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats.....	17 0 0	,, ,, ,,
Double Stretchers	19 0 0	,, ,, ,,
Double Headers..	16 0 0	,, ,, ,,
One Side and two Ends.....	19 0 0	,, ,, ,,
Two Sides and one End	20 0 0	,, ,, ,,
Splays, Chamfered, Squints.....	20 0 0	,, ,, ,,
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	,, ,, ,,
Quoins, Bullnose, and Flats.....	14 0 0	,, ,, ,,
Double Stretchers	15 0 0	,, ,, ,,
Double Headers..	14 0 0	,, ,, ,,
One Side and two Ends.....	15 0 0	,, ,, ,,
Two Sides and one End	15 0 0	,, ,, ,,
Splays Chamfered, Squints.....	14 0 0	,, ,, ,,
Second Quality White and Dipped Salt Glazed	2 0 0	,, less than best.

	s. d.	
Thames and Pit Sand	6 9	per yard, delivered.
Thames Ballast	6 0	,, ,,
Best Portland Cement	30 0	per ton, delivered.
Best Ground Blue Lias Lime..	20 6	,, ,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	12s. 6d. per yard, delivered.
Stourbridge Fire-clay in sacks	27s. 6d. per ton at rly. dpt.

PRICES CURRENT (*Continued*).

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms depôt	1 8½	,, ,,
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, delivered on road waggons, Paddington depot, Nine Elms depot, or Pimlico Wharf	2 1	,, ,,
White Basebed, delivered on road waggons, Paddington depot, Nine Elms depot, or Pimlico Wharf....	2 2½	,, ,,

	s. d.	
Ancaster in blocks	1 11	per ft. cube, deld rly. depôt
Beer in blocks	1 6	,, ,,
Grinshill ,, ...	1 10	,, ,,
Darley Dale in blocks..	2 4	,, ,,
Red Corsehill ,,	2 5	,, ,,
Closeburn Red Freestone	2 0	,, ,,
Red Mansfield ,,	2 4	,, ,,

YORK STONE—*Robin Hood Quality.*

	s. d.	
Scappled random blocks	2 10	per ft. cube, deld. rly. depôt.
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per foot super. ,,
6 in. Rubbed two sides Ditto, Ditto	2 6	,, ,,
3 in. Sawn two sides slabs (random sizes)..	0 11½	,, ,,
2 in. to 2½ in. Sawn one side slabs (random sizes)	0 7½	,, ,,
1¼ in. to 2 in. ditto, ditto	0 6	,, ,,
Scappled random blocks	3 0	per ft. cube ,,
6 in. sawn two sides, landings to sizes (under 40 ft. sup.)	2 8	per ft. super. ,,
6 in. Rubbed two sides Ditto	—	,, ,,
3 in. sawn two sides slabs (random sizes)	1 2	,, ,,
2 in. self-faced random flags..	0 5	,, ,,
Hopton Wood (Hard Bed) in blocks	2 3	per ft. cube.
,, ,, ,, 6 in. sawn both sides landings	2 7	per ft. super. deld. rly. depôt
,, ,, ,, 3 in. do.	1 2½	,, ,, ,,

SLATES.

in.	in.	£ s. d.	
20×10	best blue Bangor..	13 2 6	per 1000 or 1200 at ry. dep.
20×12	,, ,, ,,	13 17 6	,, ,,
20×10	best seconds ,,	12 15 0	,, ,,
20×12	,, ,, ,,	13 10 0	,, ,,
16×8	best ,,	7 0 0	,, ,,
20×10	best blue Portmadoc ..	12 12 6	,, ,,
16×8	best blue Portmadoc	6 12 6	,, ,,
20×10	best Eureka unfading green....	15 2 6	,, ,,
20×12	best Eureka unfading green....	17 2 6	,, ,,
18×10	,, ,,	12 10 0	,, ,,
16×8	,, ,,	10 5 0	,, ,,
20×10	permanent green	11 10 0	,, ,,
18×10	,, ,,	9 10 0	,, ,,
16×8	,, ,,	6 10 0	,, ,,

TILES.

	s. d.	
Best plain red roofing tiles..	42 0	per 1,000, at rly. depôt.
Hip and valley tiles....	3 7	per doz. ,, ,,
Best Broseley tiles	50 0	per 1,000 ,, ,,
Do. Ornamental Tiles	52 6	,, ,, ,,
Hip and valley tiles....	4 0	per doz. ,, ,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57 6	per 1,000 ,, ,,
Do. ornamental Do.	60 0	,, ,, ,,
Hip tiles	4 0	per doz. ,, ,,
Valley tiles.....	3 0	,, ,, ,,
Best Red or Mottled Staffordshire Do. (Peakes)	51 0	per 1,000 ,, ,,
Do. Ornamental Do.	54 6	,, ,, ,,
Hip tiles	4 1	per doz. ,, ,,
Valley tiles.....	3 8	,, ,, ,,
Best "Rosemary" brand plain tiles	48 0	per 1,000 ,, ,,
Do. Ornamental Do.	50 0	,, ,, ,,
Hip tiles	4 0	per doz. ,, ,,
Valley tiles	3 8	,, ,, ,,

WOOD.

	At per standard. £ s. d.	£ s. d.	
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.....	15 10 0	16 10 0	
Deals: best 3 by 9.....	14 10 0	15 10 0	
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.....	11 10 0	12 10 0	
Battens: best 2½ by 6 and 3 by 6 ...	0 10 0	less than 7 in. and 8 in.	
Deals: seconds	1 0 0	less than best	
Battens: seconds	0 10 0	,, ,, ,,	
2 in. by 4 in. and 2 in. by 6 in. ..	9 0 0	9 10	
2 in. by 4½ in. and 2 in. by 5 in. ..	8 10 0	9 10	
Foreign Sawn Boards—			
1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.	
¾ in.	1 0 0	,,	
Fir timber: Best middling Danzig or Memel (average specification	At per load of 50 ft. 4 10 0	5 0 0	
Seconds	4 5 0	4 10 0	
Small timber (8 in. to 10 in.)	3 12 6	3 15 0	
Small timber (6 in. to 8 in.).....	3 0 0	3 10 0	
Swedish balks	2 15 0	3 0 0	
Pitch-pine timber (30 ft. average)..	3 5 0	3 15 0	

PRICES CURRENT (*Continued*).

WOOD.

JOINERS' WOOD.	At per standard. £ s. d.	£ s. d.
White Sea: First yellow deals, 3 in. by 11 in.....	23 0 0	24 0 0
3 in. by 9 in.	21 0 0	22 10 0
Battens, 2½ in. and 3 in. by 7 in.	17 0 0	18 10 0
Second yellow deals, 3 in. by 11 in.	18 10 0	20 0 0
,, ,, 3 in. by 9 in.	17 10 0	19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	15 10 0	16 10 0
Battens, 2½ in. and 3 in. by 7 in.	11 10 0	12 10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21 0 0	22 10 0
Do. 3 in. by 9 in.....	18 0 0	19 10 0
Battens.....	13 10 0	15 0 0
Second yellow deals, 3 in. by 11 in.....	16 0 0	17 0 0
Do. 3 in. by 9 in.	14 10 0	16 0 0
Battens.....	11 0 0	12 10 0
Third yellow deals, 3 in. by 11 in.....	13 10 0	14 0 0
Do. 3 in. by 9 in.	13 0 0	14 0 0
Battens	10 0 0	11 0 0
White Sea and Petersburg:—		
First white deals, 3 in. by 11 in.	14 10 0	15 10 0
,, ,, 3 in. by 9 in.	13 10 0	14 10 0
Battens.....	11 0 0	12 0 0
Second white deals 3 in. by 11 in.	13 10 0	14 10 0
,, ,, ,, 3 in. by 9 in.	12 10 0	13 10 0
,, ,, ,, battens.....	9 10 0	10 10 0
Pitch-pine: deals	16 0 0	18 0 0
Under 2 in. thick extra	0 10 0	1 0 0
Yellow Pine—First, regular sizes ..	33 0 0	upwards.
Oddments	22 0 0	24 0 0
Seconds, regular sizes	24 10 0	26 10 0
Yellow Pine Oddments	20 0 0	22 0 0
Kauri Pine—Planks, per ft. cube..	0 3 6	0 4 6
Danzig and Stettin Oak Logs—Large, per ft. cube	0 2 6	0 3 6
Small ,, ,, ...	0 2 3	0 2 6
Wainscot Oak Logs, per ft. cube ..	0 5 0	0 5 6
Dry Wainscot Oak, per ft. sup. as inch	0 0 7	0 0 8
¾ in. do. do.	0 0 6½	- - -
Dry Mahogany—Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0
Teak, per load	17 0 0	21 0 0
American Whitewood Planks—Per ft. cube	0 4 0	- -

Prepared Flooring—	Per square.	
1 in. by 7 in. yellow, planed and shot.....	0 13 6	0 17 6
1 in. by 7 in. yellow, planed and matched.....	0 14 0	0 18 0
1¼ in. by 7 in. yellow, planed and matched.....	0 16 0	1 1 6
1 in. by 7 in. white, planed and shot.....	0 11 6	0 13 6
1 in. by 7 in. white, planed and matched.....	0 12 0	0 14 0
1¼ in. by 7 in. white, planed and matched.....	0 14 6	0 16 6
¾ in. by 7 inch yellow matched and beaded or V-jointed boards	0 11 0	0 13 6
1 in. by 7 in. do. do. do.	0 14 0	0 18 0
¾ in. by 7 in. white do. do.	0 10 0	0 11 6
1 in. by 7 in. do. do. do.	0 11 6	0 13 6

6-in. at 6d. to 9d. per square less than 7-in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	6 5 0	7 5 0
Compound Girders ,, ,,	8 2 6	9 5 0
Angles, Tees and Channels, ordinary sections	7 17 6	8 17 6
Flitch Plates	8 5 0	8 15 0
Cast Iron Columns and Stanchions, including ordinary patterns	7 2 6	8 5 6

METALS.

IRON—	Per ton, in London. £ s. d.	£ s. d.
Common Bars.....	7 10 0	8 0 0
Staffordshire Crown Bars, good merchant quality	8 0 0	8 10 0
Staffordshire "Marked Bars" ..	10 10 0	- - -
Mild Steel Bars	8 15 0	9 5 0
Hoop Iron, basis price.....	9 5 0	9 10 0
,, ,, galvanised.....	17 0 0	- - -

(* And upwards, according to size and gauge.)

Sheet Iron, Black.—		
Ordinary sizes to 20 g.	9 15 0	- - -
,, ,, to 24 g.	10 15 0	- - -
,, ,, to 26 g.	12 5 0	- - -
Sheet Iron, Galvanised, flat, ordinary quality—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.....	12 15 0	- - -
,, ,, 22 g. and 24 g.	13 5 0	- - -
,, ,, 26 g.....	14 5 0	- - -
Sheet Iron, Galvanised, flat, best quality:—		
Ordinary sizes to 20 g.....	16 0 0	- - -
,, ,, 22 g. and 24 g.	16 10 0	- - -
,, ,, 26 g.....	18 0 0	- - -
Galvanised Corrugated Sheets:—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0	- - -
,, ,, 22 g. and 24 g.	13 5 0	- - -
,, ,, 26 g.....	14 0 0	- - -
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker ..	11 15 0	- - -
,, ,, 22 g. and 24 g.	12 15 0	- - -
,, ,, 26 g.	14 0 0	- - -
Cut nails, 3 in. to 6 in.	9 5 0	9 15 0

(Under 3 in. usual trade extras.)

[*See also next page.*

COMPETITIONS, CONTRACTS AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
Pump Room and Colonnade, Valley Gardens	Harrogate Corporation	Not Stated	Oct. 26
Library	Glasgow Corporation	Not Stated	No date.
*New Cotton Exchange	Liverpool Cotton Association, Ltd.	Not Stated	do.

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., supplied by	Tenders to be delivered
*Making up Roads	Beckenham U.D.C.	Council's Surveyor, Beckenham	Oct. 12
*Roadmaking and Paving Works	Willesden District Council	Council's Engineer, Dyne-road, Kilburn, N.W.	Oct. 13
Road Metal, &c.	Carshalton U.D.C.	W. W. Gale, Civil Engineer, High-street, Carshalton	do.
Sewage Works	Ilford U.D.C.	H. Shaw, Civil Engineer, Town Hall, Ilford	do.
Heating Works at Asylum, Donegal	Committee	J. P. M'Grath, Architect, Foyle-street, Londonderry	do.
Road Works, Birkbeck and Clovelly Roads	Hornsey U.D.C.	E. J. Lovegrove, Engineer, 99, Southwood-lane, N.	do.
Refuse Destructor Buildings, Roselands	Eastbourne (Sussex) Corporation	D. J. Rowe, Borough Surveyor, Town Hall, Eastbourne	do.
Clock Tower, Middlesbrough Docks	N.E.R. Co.	W. Bell, Central Station, York	Oct. 14
Alterations, Shakespeare Hotel, Roper-st., Whitehaven	Messrs. J. Dalzell	W. Carmichael, Architect, Parton, Whitehaven	do.
Alterations to the Brow Top Beerhouse, Whitehaven	do.	do.	do.
Water Supply Works, &c., Whippingham	I. W. R.D.C.	H. E. Stratton, Council Offices, Pyle-street, Newport, I.W.	do.
Unclimbable Iron Fencing, Mortlake	Richmond Town Council	W. Fairley, Engineer, West Hall-road, Kew Gardens	do.
Sewage Works, &c., Richmond Green (Contract No. 2)	do.	do.	do.
Railway Offices, York	N.E.R. Co.	W. Bell, Architect, Company's Offices, York	do.
Generating Station, &c.	Kilmarnock Town Council	R. Blackwood, Burgh Surveyor, Market Bridge, Kilmarnock	do.
*166 Yards of Brick Sewer in Jermyn-street, &c.	City of Westminster	Works Department, Westminster City Hall, Charing Cross-rd., W.C.	do.
*Shops and Sunday School Premises, Swindon	Wesleyan Methodist Trustees	W. F. Bird, Architect, Midsomer Norton, Somerset	do.
*Concrete & Granolithic Roadway, Newington Wk's.	Southwark Union	G. D. Stevenson, Architect, 13, King-street, Cheapside, E.C.	Oct. 15
Thirty-two Artisans Dwellings, Steynburg-street	Hull Corporation	J. H. Hirst, City Architect, Town Hall, Hull	Oct. 16
Road Works, &c.	Pontypridd U.D.C.	R. P. Wilson, Engineer, 66, Victoria-street, S.W.	do.
Canteen Building, Phœnix Park	Public Works Department Dublin	Surveyor, Public Offices, Dublin	do.
Farm Buildings, Low Netherscales, Embleton	Executors of the late T. Leathes	E. Jackson, Civil Engineer, Whitehaven	Oct. 17
Warehouse, Dewsbury	Peebles Town Council	Holtom & Fox, Architects, Dewsbury	do.
Gasworks, Eschiels	Shipley U.D.C.	Wm. Buchan, Town Clerk, Peebles	do.
*Extension of Sewage Disposal Works	Hendon U.D.C.	Office of the Engineer, 35, Manor-road, Bradford	Oct. 19
*Road, Sewer, and Tarpaving Works	G.W.R. Co.	Council's Engineer, Council Offices, Hendon	do.
Engine House, &c., Old Oak, Acton, Middlesex	Fulham Borough Council	G. K. Mills, Paddington Station	Oct. 20
*Wrot Iron Entrance Gates and Railings	Fulham Borough Council	Borough Engineer, Town Hall, Fulham	Oct. 21
*Making-up and Paving Studdridge-street	do.	Borough Surveyor, Town Hall, Fulham, S.W.	do.
*Making-up and Paving Wingrave-road (Section I.)	Portsmouth School Board	do.	do.
School, Milton-road	Admiralty	Wm. Buchan, Town Clerk, Peebles	Oct. 23
*Coast Guard Detachment, St. Govan's Head, Pembroke	Ilford (Essex) U.D.C.	Civil Engineer, H.M. Dockyard, Pembroke Dock	do.
Depot Buildings, &c., Ley-street	Woodford U.D.C.	H. Shaw, Civil Engineer, Town Hall, Ilford	Oct. 26
Sewage Disposal Works	Bury (Lancs) Corporation	W. Spinks, Civil Engineer, 26, Park-row, Leeds	do.
Warehouse, Bradford-street, Dewsbury	London County Council	Holtom & Fox, Architects, Dewsbury	Oct. 27
Shops, &c., Water-street	do.	A. W. Bradley, Borough Engineer, Bank-street, Bury	do.
*Dwellings for Working Class, Nine Elms	Dorset Standing Joint Committee	Architect's Department, 19, Charing Cross-road, W.C.	do.
*Dwellings for Working Class, Hackney	Thames Valley, &c., Water Co., Ld.	do.	do.
*Additions to Police Station, Portland	Ipswich Town Council	County Surveyor, Shire Hill, Dorchester	do.
*Water Supply Extensions	H.M. Office of Works	G. H. Robus, Engineer, Mansion House Chambers, E.C.	Oct. 28
Public Convenience, Alexandra Park	City and County of Bristol	E. Buckham, Borough Surveyor, Town Hall, Ipswich	Oct. 29
*New Postal Stores at Islington	Tregaron D.C.	H.M. Office of Works, Storey's Gate, Westminster, S.W.	Oct. 30
*Erection of New Central Library, Deanery-road	Tottenham U.D.C.	Bernard & Son, 4, St. Stephen's Chambers, Baldwin-street, Bristol	Oct. 31
Reservoir, &c., Pencefn, Wales	Tredegar Building Society	J. Davies & Son, Civil Engineers, Llanelly	do.
*Three Underground Conveniences		Council's Engineer, Coombes Croft House, 712, High-rd., Tottenham	Nov. 3
Works at Sanatorium, Bridge of Allan, N.B.		C. G. Souttar, Architect, 30, Whitehall-street, Dundee	No date.
Ten Houses		W. S. Williams, Architect, Tredegar	do.
Warehouse, &c., Wood and Bradford-streets, Dewsbury		Holton & Fox, Architects, Corporation-street, Dewsbury	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Application to be in
*Sanitary Inspector	U.D.C. of Northfleet	£130l.	Oct. 15
*Chief Draughtsman (Straits Settlements)	Commiss. of George Town, Penang	240l., &c.	Oct. 22

These marked with an asterisk (*) are advertised in this Number. *Competitions*, iv. *Contracts*, iv. vi. viii. & x. *Public Appointments*, xvi. & xix.

PRICES CURRENT (*Continued*).

LEAD, &c.

	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 3 lbs. & up.	13 15 0	. . .
Pipe in coils	14 5 0	. . .
Soil pipe	16 15 0	. . .
Compo Pipe	16 15 0	. . .
ZINC—Sheet—		
Vieille Montagne ton	26 0 0	. . .
Silesian	25 15 0	. . .
COPPER—		
Strong Sheet per lb.	0 0 10½	. . .
Thin ,,	0 0 11½	. . .
Copper nails ,,	0 0 11	. . .
BRASS—		
Strong Sheet per lb.	0 0 10	. . .
Thin ,, ,,	0 0 11	. . .
TIN—English Ingots ,,	0 1 4	. . .
SOLDER—Plumbers' ,,	0 0 6	. . .
Tinmen's ,,	0 0 8	. . .
Blowpipe ,,	0 0 9	. . .

PRICES CURRENT (*Continued*).

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d. per ft.	delivered
,, fourths	1¾d. ,,	,,
21 oz. thirds	3½d. ,,	,,
,, fourths	2¾d. ,,	,,
26 oz. thirds	3¾d. ,,	,,
,, fourths	3¼d. ,,	,,
32 oz. thirds	4¼d. ,,	,,
,, fourths	4¼d. ,,	,,
Fluted sheet, 15 oz.	2¼d. ,,	,,
,, 21 oz.	3¼d. ,,	,,
½ Hartley's Rolled Plate	1¾d. ,,	,,
⅜ ,, ,, ,,	2d. ,,	,,
½ ,, ,, ,,	2¼d. ,,	,,

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes or barrels	per gallon	0 1 10
,, ,, ,, in drums	,,	0 2 2
Boiled ,, ,, in pipes or barrels	,,	0 2 1
,, ,, ,, in drums	,,	0 2 5
Turpentine, in barrels	,,	0 3 3
,, in drums	,,	0 3 10
Genuine Ground English White Lead	per ton	19 0 0
Red Lead, Dry	,,	19 0 0
Best Linseed Oil Putty	per cwt.	0 8 0
Stockholm Tar	per barrel	1 12 0

PRICES CURRENT (*Continued*).

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for Seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 5 6
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 12 0

PUBLISHER'S NOTICES.

THE INDEX (with TITLE-PAGE) for VOLUME LXXXIV. (January to June, 1903) was given as a supplement with the number for July 11.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each.

THE EIGHTY-FOURTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 2s. 6d. each.

Nat. Tel. 6112 Gerrard. Telegrams, "The Builder, London."

CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, &c. &c.

Six lines, or under ..... 6s. 6d.
Each additional line ..... 1s. 0d.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE AND GENERAL ADVERTISEMENTS.

Six lines or under ..... 4s. 6d.
Each additional line ..... 0s. 6d.

Terms for series of Trade advertisements, and for front page, and other special positions, on application to the Publisher.

SITUATIONS WANTED (Single-handed—Labour only).

FOUR lines or under ..... 2s. 6d.
Each additional line ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps must not be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine-street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE noon on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS Advertising in "The Builder" may have *Replies addressed to the Office*, Catherine-street, Covent Garden, W.C. *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES, { NINEPENCE EACH. By Post (carefully packed) 1s.

TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom, at the rate of 19s. per annum (52 numbers) PREPAID. To all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, &c., 26s. per annum. Remittances (payable to J. MORGAN) should be addressed to the publisher of "THE BUILDER," Catherine-street, W.C.

SUBSCRIBERS in LONDON and the SUBURBS, by prepaying at the Publishing Office 19s. per annum (52 numbers) or 4s. 9d. per quarter (13 numbers) can ensure receiving "The Builder" by *Friday Morning's Post*.

TO CORRESPONDENTS.

M. & C. W. V. (Amounts should have been stated.)
C. W. & Son (Too late; next week.)

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and not to the Editor.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ABBEY WOOD (Kent).—For the erection of temporary schools, Crossness, for the Erith Education Committee. Mr. W. Egerton, architect, 12, Queen's-road, Erith :—

J. McManus	£1,046 0	Mitson & Harrison	£763 0
Humphreys, Ltd.	863 0	Hawkins & Co.	760 0
W. Harbrow	845 0	Iles, Ltd.	647 0
Enness Bros.	798 0	Squire & Co., 20, Victoria-street, Westminster, S.W.*	645 0
Smith & Co.	792 15		
Spencer & Son	785 15		

BARRY (Glamorgan).—For the erection of a central public library, Holton-road, for the Urban District Council. Messrs. C. E. Hutchinson & E. Harding Payne, architects, 11, John-street, Bedford-row, London, W.C. :—

			A
Davies & Francis	£9,287 10 0	...	£9,189 11 0
J. Prout	7,745 10 6	...	7,620 5 0
H. S. Rendell	7,624 15 0	...	7,507 12 0
Lloyd & Tape	7,600 0 0	...	7,554 0 0
A. N. Coles	7,465 17 7	...	7,350 15 2
Stephens, Bastow & Co., Ltd	7,413 0 0	...	7,312 0 0
Lattey & Co., Ltd.	7,362 14 8	...	7,212 14 8
W. Britton	7,307 2 8	...	7,228 4 2
J. Gibson	7,162 0 0	...	7,068 0 0
Watkin Williams, Cardiff*	6,900 0 0	...	6,820 0 0

"A"—Deduction for Blue Forest of Dean.

BILLERICAY (Essex).—For the execution of sewerage works, Back-street, and other streets, for the Rural District Council. Mr. R. J. W. Layland, surveyor, Billericay :—

F. Johnson	£748 8 6	Ilec & Son	£545 0 0
Parsons & Parsons	639 2 6	Brixton & Jenner	510 0 0
T. W. Marsh	660 0 0	Chas. Ansell	508 0 0
Potter & Son	656 0 0	Wilson Border & Co., Ilford*	491 13 0
A. T. Catley	650 0 0	Roberts & Co.	471 0 0
J. Jackson	627 0 0		

[Surveyor's estimate, £540.]

BUNTINGFORD (Herts).—For the execution of drainage works at the Workhouse, for the Guardians. Mr. G. Thody, surveyor, High-street, Buntingford :—

George Jennings	£210 0	W. Hinkins	£148 16
W. Long	195 0	Gimson & Co.	137 0
D. Robinson	180 0	C. Poulton, Buntingford*	96 15
Jacklin & Co.	152 0		

[Surveyor's estimate, £151.]

CASTLEFORD (Yorks).—For the erection of fifty-two houses, Frystone, for the Wheldale Colliery Co., Ltd. Messrs. Garside & Pennington, architects, Pontefract :—

Rainey Bros.	£9,950 0 0	Wilson & Son	£7,873 17 6
Albert Elstule	9,776 2 6	J. & J. Hallewell	7,850 0 0
J. H. Carr	9,365 0 0	Wright & Sons	7,288 10 0
C. Martin	9,325 0 0	Gallagher Bros.	7,278 14 0
C. A. Howson	9,243 0 0	Perry & Son	7,203 4 6
Jackson & Dimberline	8,449 10 0	Wood & Son	7,093 3 4
Thompson & Son	8,230 0 0	T. Thompson	7,100 0 0
Henry Neal	8,069 10 0	Cyrus Birkill	6,863 0 0
		H. Mollekin, Park-av., Pontefract*	6,724 19 0

EASTBOURNE.—For alterations to the Princess Alice Memorial Hospital, for the President and Governors. Messrs. R. Plumbe & Harvey, architects, 13, Fitzroy-square, W. Quantities by Messrs. Fowler & Hugman, 9, Craig's-court, S.W. :—

John White	£1,412	Miller & Selmes	£1,300
Cornwall & Son	1,397	Mark Martin	1,270
Mark Hookham	1,397	Joseph Martin*	1,245

[All of Eastbourne.]

ELGIN (N.B.).—For rebuilding business premises, for Mr. William Ramsay. Mr. R. B. Pratt, architect, Town and County Bank Buildings, Elgin :—

Masonry.—Davidson & May, Elgin.....
Carpentry.—A. & R. Dunbar, Elgin £3,818
Slating.—George Murray, Lossiemouth ...
Plumbing.—Lyon & Sons, Elgin .....
Painting.—Kintrea & Son, Elgin.....
Ironwork.—P. & W. McLellan, Glasgow ...

EPSOM.—For destructor buildings and shaft, for the Urban District Council. Mr. E. R. Capon, Town Surveyor :—

Buildings.

Myles & Warner	£1,982	Smith & Son	£1,587
Meldrum Bros.	1,867	Cropley Bros.	1,585
J. Wilson	1,707	J. Ferguson	1,578
Denton Lee	1,675	Radford & Greaves	1,483
D. Stewart	1,658	Roll & Taylor, Epsom*	1,474
Knight & Son	1,624		
W. Wallis	1,595		

[Surveyor's approximate estimate, £1,450.]

Shaft.

Myles & Warner	£418	Meldrum Bros.	£330
J. Wilson	390	Alphons Custodei Co.	319
D. Stewart	360	Radford & Greaves	299
J. Ferguson	360	Knight & Sons	299
Smith & Son	350	Roll & Taylor*	295
Cropley Bros.	349	Universal Engineering Co.	290
W. Wallis	335		
Denton Lee	335		

[Surveyor's approximate estimate, £359.]

EXETER.—For the erection of a pair of cottages, East Woodley Farm, Newton St. Cyres, for the trustees of the Quick Estate. Messrs. Ellis, Son, & Bowden, surveyors, Exeter :—

Dart & Francis	£575 0	J. S. Brook	£502 0
L. Small	584 0	Gillard & Son	498 7
Geo. Setter	540 0	Nicks Bros.	485 0
W. Homes	539 0	W. Backwell, Crediton*	459 9
M. T. Treeman	527 5		

HALIFAX.—For the execution of private improvement works, Back Brinton terrace, for the Corporation. Mr. James Lord, C.E., Town Hall, Halifax :—
T. Wade, Thornton, near Bradford, £133 2 11

HOLMWOOD.—For pair of cottages at Holmwood, Surrey, for Mr. C. Taylor. Mr. Arthur L. Dartnell, architect and surveyor, 62, High-street, Croydon :—

Cummins & Sons	£780 0 0	W. J. Pierce	£687 0 0
L. & F. Pledge	743 15 6	W. Roberts*	585 0 0

IMPINGTON (Cambs.).—For first contract in erection of house for Mr. J. F. Horrocks. Mr. Paul Bausor, architect, 9, St. Andrew-street, Cambridge :—

Mortlock & Sargent	£465	King & Tolliday, Histon*	£459
M. Christmas	454		

LITTLEHAMPTON.—For laying water mains, and other work, for the Urban District Council. Mr. H. Howard, Surveyor, Town Offices, Littlehampton :—

H. Braybon	£432 14 0	E. H. King	£360 0 0
Duke & Ockenden	402 15 0	W. Wallis, Littlehampton*	349 10 0
A. E. Nunn	383 16 6		
Snewin Bros.	362 0 0		

LONDON.—For repairs to sheds, &c., Barking Outfall for the London County Council :—

Stokes & Son	£516 0
F. W. Bull	407 10
William Harris*	278 15

LONDON.—For docking and repair of the s.s. *Bazalgette*, for the London County Council :—

Fletcher, Son & Fearnall, Ltd.	£1,218 0 0
Reeder & Co.	1,151 3 9
London Graving Dock Co., Ltd.	1,148 2 6
Brown's Dry Dock and Engineering Co., Ltd.	948 10 0
Mills & Knight*	828 3 10

LONDON.—For the extension of the tramway at Joyce Green Hospital, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, architects :—
Leslie & Co., Ltd. ..... £610 | Dickson, St. Albans* £430
[Architects' estimate, £530.]

LONDON.—For alterations and repairs at Southfield House, Joyce Green, for the Metropolitan Asylums Board :—

Nightingale	£536	Enness Bros., Erith*	£374
Lonsdale	416	Woollaston & Co.	297

[Engineer's estimate, £485.]

SHERINGHAM.—For making up public and private street works, for the Sheringham Urban District Council. Mr. T. Inglis Goldie, Surveyor to the Sheringham U.D.C. Norwich and Sheringham :—

—	West Cliffe.	The Driftway.	Crown Inn Plain.	Church-street.	South-street.	Vincent-road.	George-street.	Cremer-street.	Church-street.	Victoria-street.	Leicester-place.	Passage No. 2.	Totals.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Edwards	74 0 0	199 0 0	250 0 0*	39 0 0	267 0 0*	404 0 0*	138 0 0*	118 0 0	24 0 0	221 0 0	49 0 0	133 0 0	1,916 0 0*
Rackham	60 0 0	217 0 0	280 0 0	39 0 0	289 0 0	437 0 0	142 0 0	131 15 0	25 5 0	203 0 0	50 0 0	115 0 0*	1,989 0 0
Bradshaw	82 4 6	224 11 3	272 19 0	38 10 6	290 11 2	422 6 1	146 0 6	113 11 5	23 1 3	235 8 10	48 11 10	123 3 1	2,020 14 5
Baker	54 7 11*	195 1* 7*	264 10 3	27 18 0*	333 17 9	457 15 0	160 0 0	127 5 0	23 2 5	256 9 6	48 10 0*	135 15 0	2,085 8 11
Burgoyne	82 7 11	236 5 0	300 15 9	37 10 0	286 5 6	455 9 9	153 14 1	1 2 19 10*	23 0 0*	234 4 6	51 6 7	122 5 5	2 146 4 4
Weston	76 10 0	222 0 0	279 10 0	30 0 0	323 0 0	512 0 0	167 15 0	137 7 7	23 10 0	232 0 0	48 10 0	129 0 0	2.182 2 0
Parkinson	96 0 0	255 0 0	294 0 0	35 0 0	328 0 0	500 0 0	167 0 0	135 0 0	25 0 0	310 0 0	60 0 0	150 0 0	2.350 0 0
Watling	92 0 0	215 0 0	324 0 0	40 0 0	295 0 0	599 0 0	190 0 0	155 0 0	30 0 0	249 0 0	49 0 0	124 0 0	2 371 0 0
Sadler	102 0 0	261 0 0	289 0 0	37 0 0	337 0 0	489 0 0	165 0 0	142 0 0	24 0 0	307 0 0	58 0 0	157 0 0	2 378 0 0

[See also next page.

LONDON.—For low-tension switchboards for New Cross and Camberwell Sub-stations, for the London County Council :—

General Electric Co., Ltd.	£3,639	0	0
Clift Manufacturing Co.	3,630	0	0
Elliott Bros.	2,856	2	0
Torque Electrical Engineering Co.	2,699	3	0
International Electrical Engineering Co.	2,684	4	0
Reyrolle & Co., Ltd.	2,082	4	0
Ferranti, Ltd.	2,336	0	0
Berry, Skinner & Co.	2,270	0	0
British Westinghouse Electric and Manufacturing Co., Ltd.	2,223	0	0
Dorman & Smith	2,202	0	0
Cowans, Ltd.	2,110	5	0
Electric and Ordnance Accessories Co., Ltd.	2,098	19	0
Siemens Bros. & Co., Ltd.	2,090	0	0
William Sanders	2,027	0	0
Electric Construction Co., Ltd.	2,026	0	0
Frank Suter & Co., Ltd.	2,021	8	0
Kelvin & James White, Ltd.	2,006	2	0
Electrical Co., Ltd.	1,984	1	0
Statter & Co.	1,935	19	6
Bertram Thomas, Manchester*	1,746	2	6

MONTROSE (N.B.).—For the erection of the Carnegie Public Library, for the Town Council. Mr. J. Lindsay Grant, architect, 2, St. Peter's-square, Manchester. Quantities by Messrs. G. Morham & Gardner, Hanover-street, Edinburgh :—

Masonry.—Ford & Son, Montrose	£3,362	14	9
Joinery.—Black & Sons, Brechin	1,150	0	0
Plastering.—Scott & Son, Aberdeen.	443	0	2
Plumbing.—J. L. Warden, Montrose	265	9	8
Iron Work.—J. Oswald, Brechin	452	18	0
Glazing.—W. Milne, Montrose	93	15	0
Slating.—Lindsay & Son, Montrose	197	3	10

[Total amount of tender, £5,974 2s. 5d.]

NEWTON-ON-AYR (N.B.)—For the erection of hospital buildings, Heathfield-road, for the Corporation. Mr. J. Eaglesham, architect, Wellington Chambers, Ayr :—

Masonry and Brickwork.

Watson & Son, Ayr*	£4,569	8	11

Carpentry and Joinery.

John McIntyre, Ayr*	2,798	14	0

Slating and Plumbing.

Alex. Dalrymple, Ayr*	1,751	2	6

Plastering and Cement Work.

W. A. Vass, Ayr*	656	12	8

Painting.

Jas. H. Fulton, Ayr*	229	17	7

Tiling.

Kean & Wardrop, Glasgow*	451	12	7½

NUNHEAD GREEN.—For external painting and repairs required to be done at the Metropolitan Beer and Wine Merchants' Asylum, Nunhead Green, Surrey. Mr. W. F. Potter, architect :—

Harris & Co.	£148	0	0	G. W. Newman	£118	15	6
H. J. Rogerson	120	0	0	F. C. Honey*	118	0	0

PORTSMOUTH.—For the construction of a sewer, &c., Copnor-road, for the Corporation :—
W. W. Learmouth, Emsworth-road, North End, Portsmouth.* Schedule of prices.

SCARBOROUGH.—For the erection of an ice factory and stores for the Pure Ice and Cold Storage Co., Ltd. Messrs. Freeman, Son, and Gaskell, architects, 11, Carr-lane, Hull :—

W. R. Birkinshaw	£4,820	0	0
C. L. Hopkins for Good & Sons, Ltd.	3,782	2	9
J. Hinton Wilson	3,743	0	0
Cooke & Co.	3,710	0	0
Bastiman & Sons	3,600	0	0
Hunter & Smith	3,564	6	1
J. Watkinson	3,472	5	9
T. Petch	3,432	0	0
Barry & Son	3,450	0	0
Wilson & Bland	3,370	0	0
Jaram & Sons*	3,255	0	0

WELLINGBOROUGH. — For the erection of two cottages at sewage farm, Irthlingborough Grange, for the Urban District Council. Mr. J. E. H. de Key, engineer, Park-road, Wellingborough. Quantities by the engineer :—

Harris Bros.	£486	2	0	Harrison & Winsor	£440	0	0
T. H. Dorman	486	9	6	Berrill & Green	424	0	0
R. Marriott	474	0	0	Woodland & Mortlock, Wellingborough*	384	17	0
J. H. Smith	463	0	0				
F. Henson	460	0	0				
W. Berrill	449	0	0				

[Engineer's estimate, £450.]

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